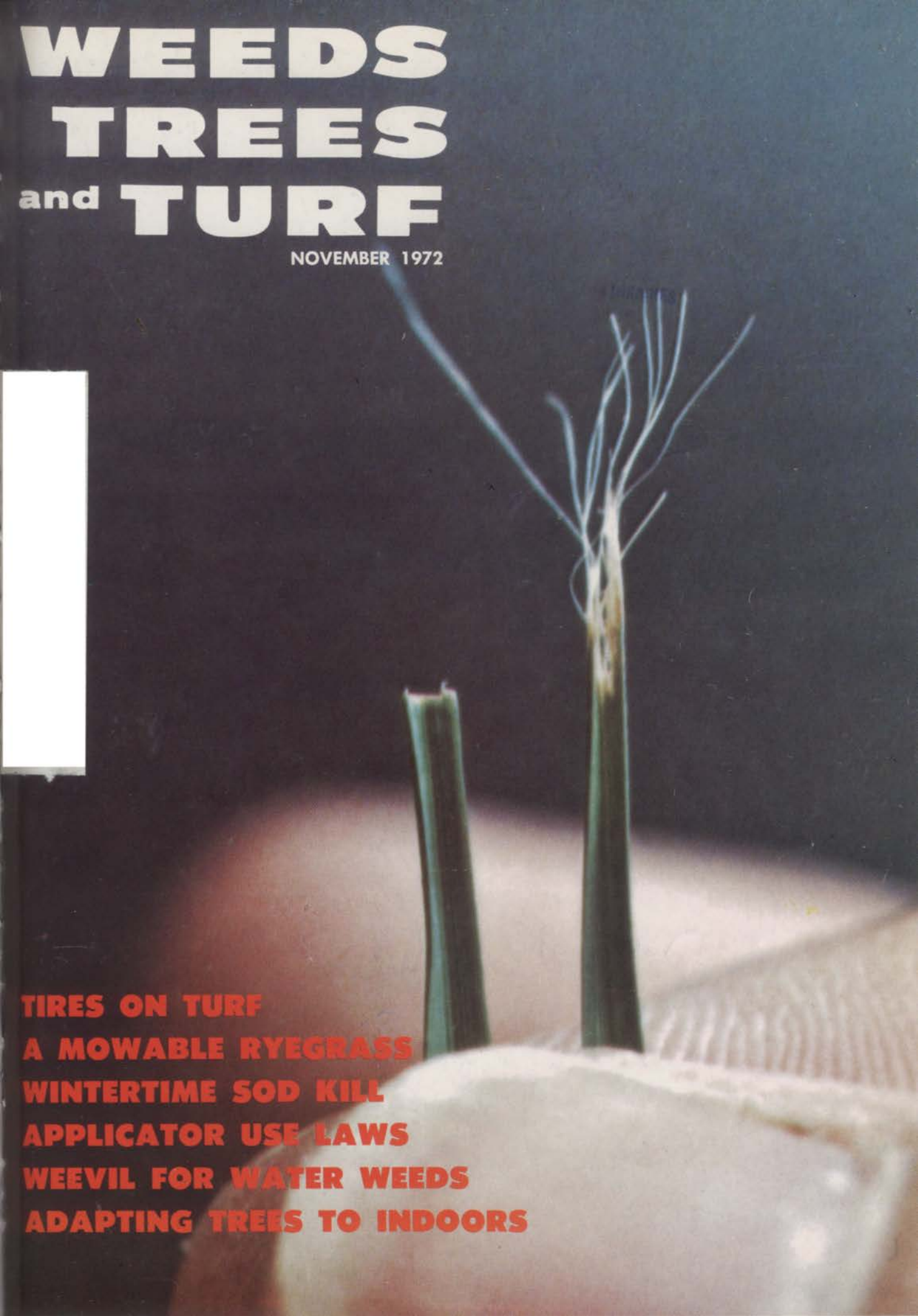
WEEDS TREES and TURF

NOVEMBER 1972



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WEEDS TREES and TURF®

Volume 11, No. 11 November, 1972

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Sow...Mow...Go... That's the story behind a fine-leafed perennial ryegrass named Pennfine. It has been receiving wide acclaim for the clean cut characteristics bred by researchers at Penn State University. Read the latest word on a ryegrass that has mowability.

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The Cover

At turf level, most ryegrasses take on the frazzled, frayed look of the blade on the right of this month's cover. Now science and nature have developed a new fine-leafed perennial ryegrass that takes a clean cut as shown in the blade on the left. This ryegrass is called Pennfine. Note the distinct differences between the two blades. Multiply the blade on the right by all the blades in a turf and the result is a faded, weathered look that often provides too much cushion for a golf ball. The blade on the left will hold a ball erect and at eye-level give a pleasing green appearance.

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Editorial Applicator's Tea Party

With the exception of the states of Washington and Kansas, the professional applicator has no voice in the administration of the application and use law enacted by his state. The situation ostensively parallels our early colonial history of taxation without representation.

As you recall, the British, like our state governments tightened up colonial administration and began to tax the colonists on imported goods. Our state governments, swept by the wave of environmental emotionalism, have, in 38 states, enacted tough application and use laws which limit, restrict and require licensing of applicators in the performance of their jobs. Like the British monarchy, never a thought was given in consulting the applicator for whom the law was passed.

While we endorse workable legislation and the provision for licensing of professional applicators, we cannot condone the parochial attitude of state administrators. A quick review of selected states shows a national myopia that must change, and soon. For example, Arizona's pesticide board is comprised of 13 members from private industry; Hawaii's advisory committee has 17 members who represent every segment of agriculture, health, structural pest control, and natural resources *except* the custom applicator; Iowa has a farmer experienced in the application of agricultural chemicals on the commission, yet farmers are exempt from licensing under the law; New Jersey's Pesticide Control Council specifies nine members, six to be state appointees and one to be a farmer, one a toxicologist and the last an ecologist; and the list goes on.

This gross snubbing of the professional applicator in favor of persons who probably have never applied an environmental protection chemical is further amplified in the fact that in all but nine states, administration of the law is delegated to the state department of agriculture, state plant board, commission of agriculture and commerce or the board of regents of the state university. We submit that this is totally out of line in view of the fact that in most states, farmers are exempt from the law.

The crux of the issue is administration without representation. The early colonists organized the Sons of Liberty groups and rejected the British goods. Professional applicators must become organized in each state and lobby for a seat on the administration board.

Pressure must be placed on the state legislature and the governor to move this board from the department of agriculture to a newly formed department of environmental protection or similar state agency. Already this has taken place in

(continued on page 25)

Government News / Business

The sequel to Rachel Carson's "Silent Spring" may well be "Naked Forest" if gypsy moth numbers are not brought under control. This cavorting caterpillar has stripped and defoliated more than a million acres of woodland each year for more than the last four years. This year was no exception. An estimated 1,361,500 acres in nine northeastern states were mauled by moth larvae. This was a drop of about 600,000 acres from the 1971 defoliation figure. Additionally the moth got the travel bug and wound up being sited for the first time in Iowa, Tennessee and West Virginia.

Wait three days before beginning the job. That's the best advice coming out of the United States Court of Appeals for the District of Columbia. The court has upheld a Federal Reserve Board regulation under the Truth-In-Lending Act. The American Association of Nurserymen have boiled down the legalesse to a few short sentences. According to AAN, a landscape firm which starts to perform a landscaping contract during the first three days does so at its own risk. The buyer can cancel the contract and tell the seller to come and get his plant material. If the seller doesn't come and get it within 10 days, the buyer can keep it. It might be a good idea to get a copy of the Act before the snow melts on next year's business.

While many USDA officials are still coloring the "Green Industry" a cool green, the National Agricultural Chemicals Association has selected a distinctive forest green color in its new board of directors. Elected from member companies were: Elton L. Clark, Rhodia, Inc.; Jack G. Copeland, Jr., Hercules, Inc.; K. Ross Ritzsimmons, Shell Chemical; Lionel Hart, NOR-AM Agricultural Products, Inc.; John Kilsheimer, O.M. Scott and Sons; Robert S. Kirk, Kirsto Company; A. Malcolm McVie, Elanco Products; Robert Naegele, Dow Chemical; Edward C. O'Connor, Kerr-McGee; and John C. Tapas, Velsicol Chemical.

AUNTIE POLLUTION is a new magazine for school-age children. Purpose is "to give youngsters the chance to explore the environment the way they want it explored." Material will be written by young people for young people. Here's a chance to let that young journalist in the family write about the business (es) of the "Green Industry."

Twenty-three companies have requested a hearing on the proposed order to cancel most uses of Aldrin and Dieldrin. They charge that there is no substantial question of the safety to man or the environment in the use of these environmental protection chemicals. They also submit that no reasonable substitutes for them exist, particularly for soil application for corn, citrus and termites.

Federal Highway Administration and the auto industry will eventually make highways safer. In addition to shock-absorbing bumpers sported by a few autos, energy-absorbing crash barriers are proving to be highly effective life savers. Technically known as impact attenuators, these barriers are placed in front of immovable objects which cannot be eliminated from the roadside. Be on the lookout for water-filled plastic cylinders and metal drums known as "Texas barrels," all designed to absorb energy and minimize damage to vehicles and occupants. All are part of President Nixon's intensified highway safety campaign.

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Federal Environmental Pesticide Control Act

Although held in suspension throughout two Congressional sessions by the vigorous agitation of many outside pressure groups, the Federal Environmental Pesticide Control Act of 1972 was signed into Public Law 92-516 by President Nixon on October 21, 1972. The long-awaited Act substantially amends the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and provides rational guidance in the certification of applicators, registration and labeling of environmental protection chemicals, classifications of compounds and penalties for violation, and satisfies some of the demands of the environmentalists.

The single greatest provision, which the Law details in specific terms throughout the many-page document, is the autocratic authority now vested in the EPA Administrator. Perhaps no other political appointee wields as much power over any industry or segment of American government as William D. Ruckelshaus. The Law clearly elevates his position to patriarch of pesticide protection. Regulations, classifications, determinations, rejections, suspensions and enforcements will be metered out by the judgment of this one individual.

Environmental protection chemicals will be registered for general use or for restricted use. The key word is use. Determination of use is made by the Administrator. For example, if he determines that a pesticide, "when applied in accordance with its directions for use, warnings and caution and for the uses for which it is registered, or for one or more of such uses, or in accordance with a commonly recognized practice, will not cause unreasonable adverse effects on the environment, he will classify the pesticide, or the particular use or uses of the pesticide to which the determination applies, for general use."

Restricted use chemicals may be applied only by or under the direct supervision of a certified applicator. Determination of the restricted use classification is made by the Administrator when he finds that the acute dermal or inhalation toxicity of the chemical presents a hazard to the applicator or other persons, or that its use without additional regulatory restriction may cause unreasonable adverse effects on the environment. But that's not all. The Administrator may also tack on additional regulations for restricted use, subject to review in a court of appeals upon petition. Further, the Administrator may change the classification of any use of a chemical from general use to restricted use, again subject to appropriate notification and the publishing of the proposed change in the FEDERAL REGISTER.

While the Federal Environmental Pesticide Control Act of 1972 became Law when signed by the President at Camp David, Md., there is a lag as to when various provisions of the Act become effective. For instance, chemical candidates for registration will be administered under the provisions of FIFRA for the next two years. By then, EPA will have published regulations for the registration and classification of pesticides under the new Law. After these initial two years, the Act specifies that the Administrator has an additional two years to register and reclassify chemicals registered under FIFRA during the first two years. Also, a grace period of four years from October 21, 1972 is built into the Law for requirements that a pesticide be registered for use only by a certified applicator. And, a period of four years is provided for certification of applicators.

Copies of the new Law are scarce. Yet it will behoove anyone even remotely concerned with environmental protection chemicals and their application to have a copy of the law in their possession. Best source is your Congressman or write to the Government Printing Office and ask for Public Law 92-516. It could be well worth the effort.

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PART II

Applicator Use Laws

PART I of Applicator Use Laws was printed in the October issue of WEEDS TREES AND TURF. At that time, it was noted that many states are currently establishing licensing procedures in line with proposed Federal legislation. This legislation has now become law. The Federal Environmental Pesticide Control Act of 1972 was signed by President Nixon on October 21.

Therefore, it is pertinent to review several points in this Act pertaining to applicators of environmental protection chemicals. These include certification of applicators, licensing or certification standards, training and the effective date of compliance.

Within one year EPA will prescribe standards for certification of applicators. These standards will include provisions for use and handling of chemicals or the use and handling of chemicals covered by an individual's certification.

States desiring to certify applicators may at any time submit a state plan through the governor of the state to EPA. Criteria for approval by Administrator Ruckelshaus include: 1. designation of a state agency responsible for administering the plan; 2. assurance that the agency has or will have the legal authority and qualified personnel necessary to carry out the plan; 3. appropriation of adequate funds to the administration of the plan; 4. issuance of such reports to EPA as the administrator may require; 5. standards for certification of applicators that conform with those standards prescribed by EPA. The Law clearly specifies that the burden of responsibility for state certification of applicators rests on the states.

Training of applicators will be accomplished two ways. EPA is authorized to enter into cooperative agreements with states or form contracts with Federal or state agencies. The services of the state cooperative extension service may be used to inform farmers of accepted uses and other regulations of the Law. Currently, most states have made no provision to train applicators.

The new Law further states that a period of four years from the date of enactment shall be provided for certification of applicators. Further, within three years each state desiring to certify applicators must submit a state plan to EPA. No more than one year may lapse after state submission before the Administrator must approve the state plan or indicate reasons for disapproval. Consideration of plans resubmitted by states will be expedited.

The following completes the state-by-state breakdown on the use and application laws for commercial applicators:

MONTANA

Administered by the state department of agriculture, Montana passed its first pesticide use and application law, effective January 1, 1972. The act updates existing registration laws and provides for regulating "restricted use pesticides."

NEBRASKA

Until it was approved in February, Nebraska had no pesticide use and application law. Under the new Legislative Bill No. 905, the term pest control professional is defined as "any person who operates pest control equipment, applies economic poisons, or buys and sells economic poisons for a valuable consideration. Legislative Bill No. 285, approved February 18, 1972, amends certain sections of the statutes relating to aeronautics by authorizing the department of aeronautics to issue appropriate certificates designating qualified individuals to conduct aerial pesticide application operations in the state, after meeting certain qualifications, including experience, training, and financial responsibility.

The legislature further has resolved "that the Extension Service of the University of Nebraska is urged to expand its educational programs in the use of chemical pesticides and herbicides by providing additional training courses or seminars for farmers and ranchers, and by encouraging county agents to provide additional instruction at the local level."

NEVADA

The Nevada Pesticides Act is the new name for the older Economic Poisons Law. It continues to be unlawful to apply pesticides by aircraft or ground equipment without a license. Additionally, the executive director of the state department of agriculture has the authority to eliminate from use in the state any pesticide which endangers the agricultural or nonagricultural environment and which is not beneficial for the purpose for which it is sold. Under the custom application law, Assembly Bill No. 280 would permit the acceptance of liability insurance policies with a deductible feature of $500 for aerial operators and $250 for all others.

NEW HAMPSHIRE

Unless registered with the Pesticides Control Board, it is unlawful to engage in commercial application of pesticides. Exemptions include research and experimental work and individuals making their own application provided their crops are not offered for sale. Renewal of licenses is on a calendar year basis. However, the applicant for renewal must furnish sample, accurate record of his use of pesticides for the preceding calendar year. Another relevant law concerning licensing of applicators is the New Hampshire Arborist Law.

NEW JERSEY

There is no pesticide use and application law in this state. Rather Assembly Bill No. 1386, approved June 1, 1971, supplements the current economic poison act and authorizes the department of environmental protection to adopt regulations, after consultation with the pesticides control council, which will regulate the use and application of pesticides. Thus the Pesticides Control Act of 1971 becomes in effect the first pesticide use and application law.

NEW MEXICO

A license is required in this state to act, operate, do business, or engage in custom application of pesticides. Exemptions to the Pesticide Applicators Law include: stump treatment, axe frilling, tree injection, plant treatment adjacent to buildings and termite and household insect control. While there is no charge to take the examination, a $25 annual fee is levied for each unit of aerial application equipment, and $10 annual fee for each unit of "any other applicator." Permits expire December 31 and are renewable upon application made prior to March 31. Afterwards, a written examination is required.

N. C. Applicators Face Big Decision

The N. C. Pesticide Law of 1971 requires all "restricted-use" commercial ground applicators, pesticide dealers and pest control consultants to obtain an interim license by Jan. 1. Aerial applicators had to obtain an interim license by last July 1.

The N. C. Department of Agriculture will mail an application for an interim license by Nov. 1 to all restricted-use commercial ground applicators pesticide dealers and pest control consultants currently on the department's mailing list. Other people may apply for an application by writing to William B. Buffaloe, Administrator, Pesticide Branch, N. C. Department of Agriculture, Raleigh, N. C. 27611.

Commercial ground applicators and pest control consultants know they must apply for a license, commented John H. Wilson, pesticide education coordinator at N. C. State University. But dealers may have difficulty determining if they are selling restricted-use pesticides or if they want to sell them in the future.

So far, the N. C. Pesticide Board has placed over 60 pesticides on the restricted-use list. Included on the list are such common pesticides as heptachlor, DDVP, dieldrin, Mirex, parathion, paraquat, warfarin, Thimet, and Systox. Any dealer selling such pesticides must obtain an interim license and then qualify for a permanent license by Jan. 1, 1974.

Wilson said county officials of the Agricultural Extension Service can help dealers to determine if they are now handling restricted-use pesticides. The Extension Service is also preparing an educational program that can help restricted-use dealers qualify for their permanent license by the end of next year.

"The new law is not intended to put anyone out of the pesticide business," Wilson said. "But selling pesticides in the future is going to be different from selling apples."

NEW YORK

Fifty-five chemicals are now listed as restricted pesticides in this state. These may be distributed, sold, purchased, possessed and used only upon issuance of a commercial or purchase permit. In addition, the state has listed seven chemicals which may only be distributed, sold, purchased, possessed or used for the purposes listed by the state. Further, 10 pesticides are listed for which no permitted uses will be allowed This designation of restricted pesticides by chemical name is the largest published list available and represents the first attempt for a state to limit pesticide usage. It is also interesting to note that an applicant for a license must satisfy the commissioner of agriculture and markets that he has sufficient knowledge and experience concerning the proper use and application of pesticides prior to taking the examination and issuance of a license. Licenses are issued for one year although registration may be cancelled or refused for specified causes (including application of pesticides contrary to the registered label usage).

NORTH CAROLINA

In the new pesticides control law which became effective January 1, 1972, the seven-member pesticides control board has the authority to require the examination and licensing of "applicators" and "consultants." It also repeals the general statutes of the Aerial Crop Dusting Law applicable to custom application of pesticides by aircraft. The new law authorizes the board to adopt a list of "restricted use pesticides" and to regulate their use, including the establishment of a "permit" system.

NORTH DAKOTA

The Aerial Spraying law prohibits anyone to engage in aerial spraying without obtaining a license for each aircraft from the North Dakota Aeronautics Commission. At presstime, no other information was available as to whether ground applicators must be licensed.

OHIO

Under the provisions of the Pesticide Use and Application Act, it is unlawful to act as a pesticide applicator, pesticide operator, or public operator unless licensed by the director of agriculture. Following the necessary qualifications, application and examination, the applicator is charged $50, the pesticide operator $10, and the public operator has no fee assessment. Provisions are made for reciprocity for nonresident applicators.

OKLAHOMA

While it is unlawful to engage in custom application of pesticides without a license, the Oklahoma Pesticide Applicators Law exempts the application of pesticides on lawns, trees, shrubs, and in the control of termites and houusehold insects. For other application jobs a written examination is required. Fees are $25 for a resident aerial applicator; $25 for each aircraft for a nonresident aerial applicator; and $10 for other applicators. The Ornamental Spraying and Pruning Law requires the licensing of persons who engage in the business of spraying or pruning trees, shrubs, or weeds. Further, the Oklahoma Phenoxy Herbicide Law requires dealers who sell phenoxy herbicides to obtain permits and keep

records, and requires users who buy one quart or more of a phenoxy herbicide to keep records and report to the state department of agriculture upon request.

OREGON

Minimum requirements for licensing is 18 years of age. Exemptions to the Oregon Pesticide Application Law make a formidable list. They include: the State of Oregon and its agents, counties, cities, municipal corporations, irrigation and drainage districts, public utilities, manufacturers and governmental agencies using pesticides in research, caretakers using manually operated equipment, retailers (unless demonstrating application of pesticides), railroads (except when using volatile herbicides in power equipment), manual laborers, and pollenicide applicators. Preference is given to applicants in taking the written examination. Exempt are: applicants with four years of college, majoring in entomology or agronomy; a trainee completing 1,000 hours experience; former licensees who worked three months during a year in two out of the last three years. Regulations establish that four types of licenses may be issued, herbicide, insecticide-fungicide, structural pest and rodenticide, and fumigation. A "special applicator" and "special trainee" license may be issued to individuals in government employment.

PENNSYLVANIA

Currently there is no pesticide use and application law. However, there are a number of laws which restrict pesticide usage or control the application of pesticides.

RHODE ISLAND

This is one of two states where there are no exemptions to the licensing law. Everyone must be licensed.

SOUTH CAROLINA

At presstime, there was no evidence of a pesticide use and application law. Relevant laws applying to county licensing of structural pest control operators has been authorized in legislation applying to Georgetown, Williamsburg, Clarendon and Greenwood counties. Applicable also is the South Carolina Economic Poison Law of 1954.

SOUTH DAKOTA

The applicant must submit a written application (under oath) in order to activate the licensing machinery. The regulations provide for an examination of the applicant apply insecticides, herbicides or fungicides on agricultural land, and for a special examination for applicants applying parathion, TEPP, Metacide or other chemicals designated by the secretary of agriculture. The applicant must also file an affidavit that he has no outstanding claims or unpaid judgments. The regulations provide for a class "A" and class "B" permits for aircraft operators. Special permits are also required for application of pesticides within 10 rods (165 feet) of watered areas, and may be issued only after conference with the director of the department of game, fish and parks.

TENNESSEE

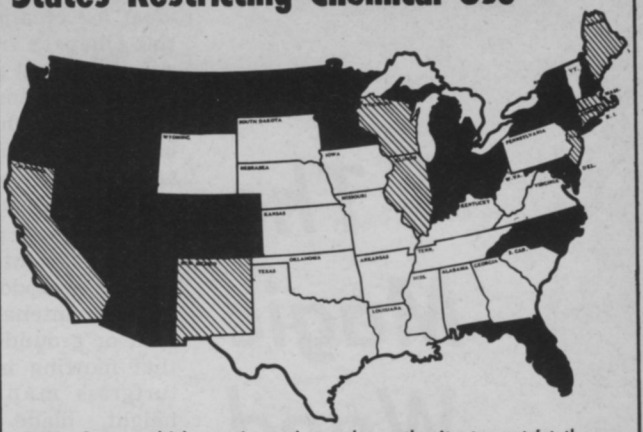
Senate Bill 1434, approved April 25, 1972, repeals the existing pest control act and adopts the Tennessee Pest Control Operators Act of 1972. This act is admittedly concerned primarily with structured pest control activities. However, the Board is authorized to ". . . determine the different categories of service or classes (of) . . . licenses . . ." and a number of such categories have been established, including agricultural pest control by aircraft. Perhaps more important is the licensing procedures. Unless licensed, it is unlawful to solicit, give advice, or engage in work for compensation, for the control or eradication of insect pests, plant diseases, pest animals, and wood-destroying organisms. Applicants for licenses are certified as first-class or second-class, depending upon qualifications. These include two years experience or two years college study in an appropriate field. Included in the application must be references and copies of proposed contracts to be used in the business. A preliminary written exam is given each calendar quarter, followed by appearance and examination before the Board. Oral exams are prohibited. Licensees must report each month's business to the department of agriculture and send copies of all contracts for termite service.

TEXAS

There is no pesticide use and application law per se. The Texas Herbicide Law, however, regulates the sale, use, and transportation of herbicides and requires commercial applicators to obtain a permit. Those who sell herbicides are required to be licensed by the department of agriculture. Equipment used in custom application must also be inspected and licensed. In a recent amendment to the law, authority was given to county commissioner courts to exempt, revoke exemptions and reinstate exemptions of counties from the provisions of

(continued on page 36)

States Restricting Chemical Use



■ States which restrict or have the authority to restrict the sale and use of certain designated chemicals.

▨ These states use terms or include authority for a state agency to prohibit, restrict or otherwise control the use of designated chemicals through the issuance of regulations.

Alaska
California (restricted materials or injurious materials)
Connecticut (prescribed or prohibit use)
Hawaii (herbicides only)
Illinois
Maine (relating to waters)
Massachusetts (hard, persistent perticides)
New Jersey
New Mexico (environmentally harmful, persistent pesticides)
Rhode Island (banned or restricted pesticides)
Wisconsin

The Magic Wand Of Science — A Ryegrass That Cuts Clean

MICHELANGELO'S wide, shaggy paintbrush may have been ideal for creating beauty in the Sistine Chapel's frescoes. But a shaggy paintbrush cut on a golf course seeded with perennial ryegrass signals a fuzzy turf that can slow down a ball and one that takes on a damaged, frayed look when the shredded ends dry out and turn brown.

This frayed and fibrous look can cost a superintendent plenty in reseeding, re-sodding and general turfgrass maintenance. Any superintendent or grounds manager will agree that mowing is an integral part of turfgrass management. Cutting height, blade sharpness, mowing speed, clippings—all are top priority items. A correctly adjusted mower with a finely honed blade can create just the effect desired by the golfer. Run this mower on an area where a ryegrass is seeded and the result is often an unsightly brown caused by rough and shaggy blade ends.

The nature of most perennial ryegrasses is to produce rapid growth early in the season until the more predominant Kentucky bluegrasses develop. But the advantage of early season growth is offset by the disadvantage of perennial ryegrass being hard to mow. Recently, however, science and nature have teamed up to develop a new ryegrass that has superior mowability characteristics. The new ryegrass is Pennfine perennial ryegrass.

This fine-leaved perennial was bred specifically for superior mowability. As the November WTT cover shows, Pennfine cuts sharp and clean. How? Turfgrass breeders at Penn State University, under the direction of Dr. Joseph Duich, developed this non-fluorescent variety to have softer, cleaner-cutting fibers, a marked departure from the inherent characteristics of other ryegrasses.

Further, by refining the coarseness of the leaf, the scientists discovered that when cut, the blade produces a scissor-cut look that holds a ball erect.

This attractive feature combined with the superior mowability has caused many turf managers to take a second look at Pennfine. For example, Jim Ganley, superintendent at Pinehurst Golf Course. North Carolina, regularly overseeds greens with perennial ryegrass.

"We've been using Pennfine on Pinehurst's No. 2 course with excellent results," he says. "It takes a good, even cut. Any shredding that does take place is probably not as noticeable to the eye because of Pennfine's finer blade. Our plans are to include it in the overseeding of the other four courses here at Pinehurst."

The finer-blade variety has performed favorably in many research trials at state universities. In tests conducted at University Park, Pennsylvania, Pennfine cultivars ranked first in mowability among nine ryegrasses tested. It was also first in texture, density, decumbency (low growth) and disease tolerance to snowmold and leafspot.

The trials for leaf-width measurements showed Pennfine to average 2.5 mm for the first mature leaf compared to 2.7 mm to 5.6 mm for others in the test.

A. E. Dudeck and E. O. Burt, assistant professor and professor of ornamental horticulture, respectively, at the University of Florida, point to another characteristic. Their tests evaluated the performance of 24 varieties and mixtures of ryegrasses, bluegrasses and fescues used for overseeding of winter-dormant bermudagrass putting greens on southern golf courses.

Besides noting the high mowability and turf quality during the critical spring transition period, they charted slow growth rate as a distinct advantage.

"Clipping weights were taken 10 weeks after seeding as a measure of differential growth rates between treatments," Dudeck said. ". . . Annual ryegrass produced the most clippings compared to other ryegrasses while Pennfine produced the least. Pennfine ryegrass would appear to have an advantage over the other ryegrasses because of its slow growth rate and good quality ratings."

All commercially produced perennial ryegrasses have certain desirable characteristics; however, up to now, mowability has not been one of them. Seedsmen and sod producers usually point out the other attributes of perennial ryegrass and leave the cut of the blade as an unmentionable. But the mowability of Pennfine has started a mild revolution.

Russ Billings, long-time seedsman and president of Stanford Seed Company, Buffalo, New York, has 35 years of grass seed selling under his belt. Nearly every turfgrass available has come under his critical eye.

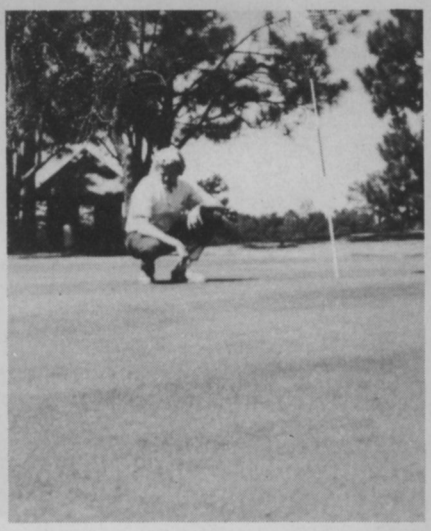
"Frankly, I've never seen anything like Pennfine," he says. "It has thick, complete coverage, a pretty green color, and when I cut it, it just doesn't brown or fray as other ryegrasses have always done. It cuts cleanly."

Results of turfgrass trials at Ohio State University on tests of ryegrass cultivars.

Cultivar	Density[1]	Uniformity[2]	Color[1]	Disease[3]	Desirability[1]
Pelo	6.0	6.6	5.6	3.5	5.6
Norlea	5.9	6.1	5.4	3.0	5.3
Common Perennial	4.0	4.1	4.3	2.0	3.3
Manhattan	7.2	7.3	6.9	5.0	7.0
NK-100	5.1	5.4	5.6	2.5	4.4
MSU Perennial	4.9	5.1	4.8	1.8	4.5
Brabantia	4.6	5.0	5.7	2.8	4.3
Combi	4.1	4.5	5.3	3.3	3.6
K9-124	7.5	7.1	8.1	5.0	7.3
K9-123	3.8	4.1	6.0	1.8	3.6
K9-125	5.5	5.8	7.1	4.3	5.3
Pennfine	7.6	8.1	7.0	8.3	7.4

[1]average of 4 ratings
[2]average of ratings on July and Aug. 3
[3]average of rating on July 1

Rating System: Density, Uniformity, Color, Desirability
9 most 1 least
Disease 1 most 9 least



Jim Ganley, superintendent at Pinehurst Golf Course, Pinehurst, North Carolina.

Billings is building a home in an area where the surrounding soil is a heavy clay poor in nutrients—definitely not the easiest place in the world to get grass started. But in spite of that "Pennfine has taken hold right away."

Mowing clean can mean a lot for sales of turfgrass sod. Homeowners who invest many dollars in a quality sod demand that the turfgrass not only cut clean but look well manicured. A sod containing perennial ryegrass that has a shaggy, rugged look is cause for rejection. Business back at the sod farm hurts when this happens. That's why a ryegrass that mows cleanly can boost profits in the sod sales department. As Parker Shirling, vice president, Princeton Turf Farms, Inc., Centreville, Maryland, put it, "We've had no trouble mowing Pennfine and we don't change mowers to get the cut either. It really mows clean."

Unlike the superintendent or grounds manager whose standard maintenance practices include keeping mowers sharp, the homeowner is often guilty of operating his mowing equipment under less than ideal conditions. While he wants his lawn to maintain a good appearance, the task becomes an often dreaded chore. But even with seldom sharpened mowers homeowners such as Ronald Barrett of Guilderland, New York report less shredding of leaves with Pennfine.

"It doesn't shred as easily as other grasses I have grown," he claims, "and my lawnmower hasn't been exceptionally sharp either."

Pennfine is recommended for athletic fields, golf courses, cemeteries, public grounds, parks, sod farms and home lawns. It is highly compatible in blending with other grasses or in overseeding of established turf areas.

In all these areas, turfgrass managers are interested in getting the maximum performance from their turfgrass seeding. Like Michelangelo, each continually works for perfection with the tools available. A clean cutting ryegrass adds a new dimension to turfgrass care. Small wonder that the excitement over Pennfine's mowability is contagious.

Fine-leafed Pennfine is ideal for home lawns. Fibers cut clean even with a seldom sharpened mower. Great for overseeding, too.

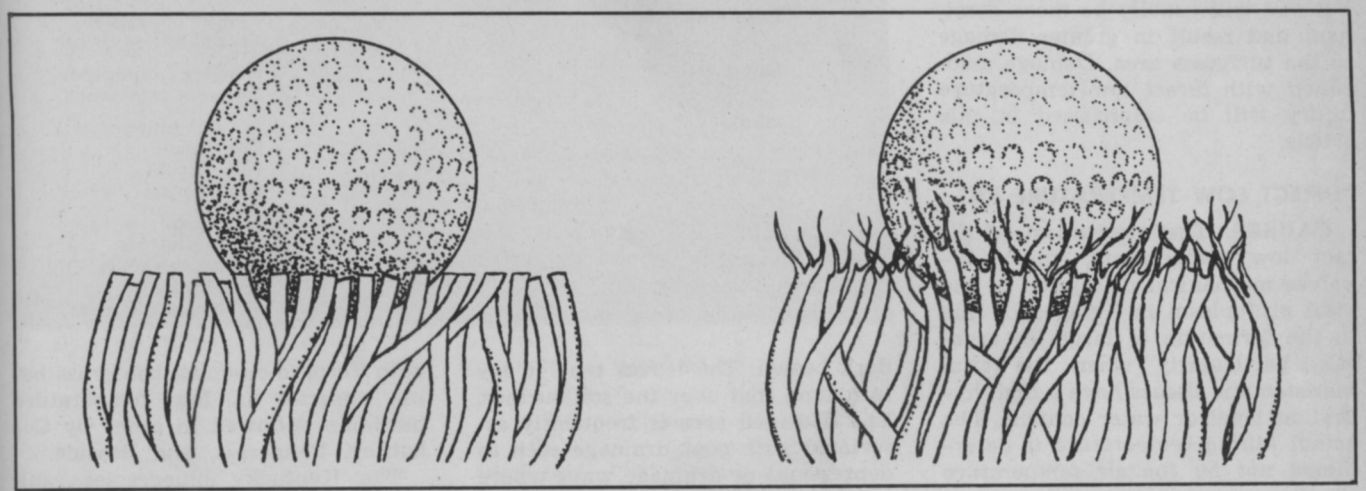


Figure 1. Direct low temperature kill of Kentucky bluegrass sod in depressional areas where the standing water had caused increased hydration of the turfgrass crowns just prior to a severe freeze.

LOW TEMPERATURE TURFGRASS KILL

By DR. JAMES B. BEARD
Professor, Department of
Crop and Soil Sciences
Michigan State University

IN ORDER to take steps to prevent winter injury, it is first necessary to delineate the sepcific type or types of winter injury occurring on the particular turfgrass area under concern. The specific preventive practices selected will vary depending on the type of winter injury that most commonly occurs.

Specifically, the three major types of turfgrass winter injury that occur are direct low temperature kill, desiccation, and low temperature fungi. In some cases all three types of winter injury may be present, but one will usually be more dominant and result in greater damage to the turfgrass area. Damage associated with direct low temperature injury will be emphasized in this article.

DIRECT LOW TEMPERATURE KILL

CAUSES. The mechanism of direct low temperature injury involves mechanical disruption of the vital protoplasm in living cells due to the formation of large ice crystals, particularly when the vital meristematic tissues have a high hydration level or water content. *The actual killing temperature is determined not by the air temperature but rather the soil temperature surrounding the meristematic tissues of the grass crown and nodes of lateral shoots such as rhizomes and stolons.*

SYMPTOMS. At the time of spring thaw the leaves initially appear water-soaked with a whitish-brown color that turns rapidly to a dark brown. The leaves tend to lay in a limp mat over the soil surface. The damaged area is frequently associated with poor drainage such as depressions or drainage ways where water has been allowed to stand for a period of time. The appearance will vary in a large, irregular pattern or patches associated with sites where standing water occurred. In some cases a distinct, putrid odor occurs within 14 days after spring thaw.

TURFGRASS TOLERANCE. Turfgrasses vary in the ability to survive low temperature stress. This is dependent on the capability to harden-off in late fall. Hardening involves a series of physiological changes in which the water content of the plant tissue is reduced. It normally occurs at soil temperatures in the range of 35 to 45° F. over a period of three to four weeks during the fall. During this process the water content in the tissue will decrease from a normal level of 80% to between 60 and 70%.

The relative degree of low temperature hardiness varies seasonally through the winter. *Maximum hardiness is reached in December followed by a gradual decline until a minimal hardiness level exists just at the time of spring thaw.* At this point, the hydration level of the plant tissues is quite high and thus the plant is most prone to direct low temperature kill during this late winter-early spring period prior to the initiation of growth. Direct low temperature kill may occur if there is a rapid decrease in temperatures to below 20° F.

Turfgrass species vary in hardiness to direct low temperature kill as summarized in Table 1.

The creeping bentgrasses are exceeded only by rough bluegrass in terms of low temperature hardiness. There are also cultivar differences with Toronto creeping bentgrass being superior in low temperature hardiness followed in order by Cohansey, Penncross, and Seaside.

The Kentucky bluegrasses rank

Table 1
The comparative low temperature hardiness of thirteen commonly used turfgrass species.

Low Temperature Hardiness Ranking	Turfgrass Species
Excellent	Rough bluegrass Creeping bentgrass
Good	Kentucky bluegrass Colonial bentgrass
Medium	Annual bluegrass Red fescue Tall fescue Zoysiagrass
Poor	Perennial ryegrass Bermudagrass Italian ryegrass Bahiagrass St. Augustinegrass

good in low temperature hardiness. Cultivar differences in low temperature hardiness occur within the Kentucky bluegrasses with Nugget being superior in low temperature hardiness followed by A-34, Baron, Fylking, Galaxy, Merion, Pennstar, Sodco, and Sydsport. Delta, Kenblue, Park, and Prato are generally inferior in terms of low temperature hardiness.

Among the perennial ryegrass cultivars, the relative ranking from most to least low temperature hardiness is Norlea, Manhattan, Pennfine, and Pelo.

It is evident that selection of the appropriate turfgrass species and cultivar for a given area will assist greatly in minimizing low temperature injury.

PREVENTING LOW TEMPERATURE INJURY. Aside from selection of low temperature hardy turfgrasses, the most effective method of minimizing low temperature injury is to ensure adequate surface and subsurface drainage. This is particularly evident in Kentucky bluegrass sod production fields where serious low temperature kill has frequently occurred during the past six years (Figure 1). This injury is generally associated with low, poorly drained areas where standing water occurs.

Preventing this problem involves ensuring proper surface drainage by establishing modest slopes toward catch basins, waterways, and open drainage ditches. Subsurface drainage in the form of drain tile will also facilitate removal of excess water from the soil, providing it is not frozen.

Subsurface drainage can also be enhanced by cultivation involving either coring or slicing that will reduce the degree of soil compaction. **The importance of proper drainage and the avoidance of standing water in depressional areas cannot be stressed too much.**

There are other cultural practices that also contribute to a decreased incidence of low temperature kill. Basically these practices either enhance the fall hardening process by avoiding excessive stimulation of shoot growth that increases the hydration level or they serve to enhance the degree of insulation against low temperature stress occurrence in the vicinity of the vital meristematic areas.

Specific practices that can be utilized include moderate nitrogen nutritional levels. This means avoiding nitrogen fertilization during the fall low temperature hardening pe-

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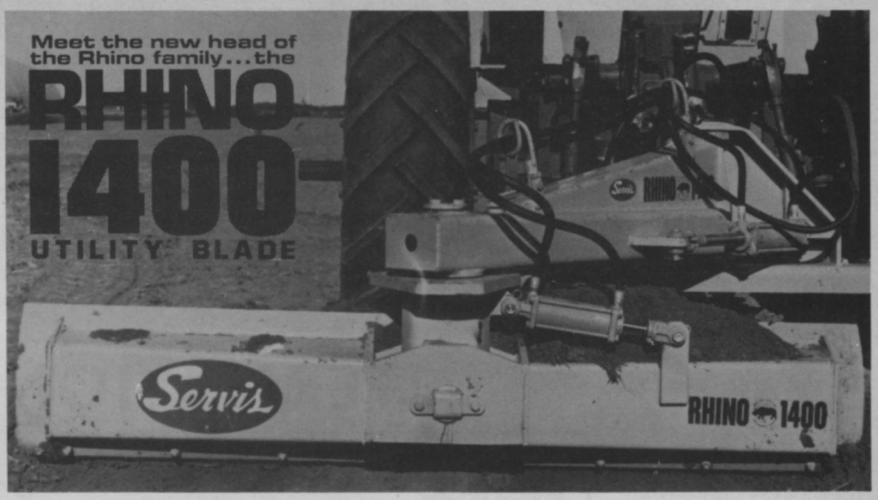

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LIKE an arctic iceberg, the bulk of professional applicators, both members and potential members, were remotely obscure at the 11th annual International Pesticide Applicators Association convention in September. The reclusion of those absent only increased the enthusiasm of those present, however.

Unlike the iceberg, the meeting was anything but cold. While a warm autumn sun beckoned with week-long shining rays, members resolutely turned their attention to the hotter issues confronting the custom applicator. Topics including legislation, public relations, weed control, biological insect control, operational safety, and infra-red photography highlighted this year's meeting which was held in Portland, Oregon.

Keynote speaker, Fred C. Trullinger, president of the Charles H. Lilly Co., Portland, set a tone of caution optimism for the applicators early in the formal program. "Today there are an increasing number of people who want your services. The public has demanded an environment which is safe. The pesticide issue has created an awareness that all chemicals should be handled carefully," he said. "You people represent a portion of the industry that has made tremendous strides in the past 20 years. . . . Agricultural chemicals have done as much as anything in improving the environment for what it is."

Trullinger said that the two principle issues of the professional applicator today are to operate the business to receive a fair return on investment and to eliminate the danger of being legislated out of business.

He said that many applicators are concerned about the introduction of environmental protection chemicals in the future. The potential uncertainty of the use life of products on the market has caused widespread concern throughout the industry. "In today's climate," he said, "it is a battle to hold onto the present registrations." Pointing to industry, he said the National Agricultural Chemicals Association reports that 23 percent of the research and development budgets of the agrichemical industry is spent in maintaining registrations.

Additionally, he said it currently costs industry $10 million to bring a candidate chemical from the test tube to the market place. "Let's face it," Trullinger remarked, "manufacturers are not going to invest $10 million for a chemical that has a life of three or four years."

Trullinger concluded his remarks in noting that there is a need for: 1. more true professionals in this industry; 2. better profits; 3. better use of materials and methods of application; and 4. a united effort by all professional applicators.

The pesticide issue today was brought into clearer focus by an interesting presentation from Dr. J. Gordon Edwards, professor of entomology, San Jose State College, California. This was the second year Dr. Edwards was on the program. Considered a world authority of the issue of DDT, he brought the group up to date on the background of the DDT ban and explained in detail many of the inaccuracies and inconsistencies surrounding the testimony in the recent hearings.

One interesting point made during the lengthy discussion was that all living creatures have absorbed less than one-thirtieth of one year's production of DDT. That is after 25 years of production and six billion pounds of product, said Dr. Edwards.

In the area of association public relations, James A. Sample, editor, WEEDS TREES AND TURF magazine, focused attention on the exterior goals IPAA needs to develop. Calling it management of the public will, Sample said that as difficult as this job is, it is critical to the professional applicator. "IPAA needs more national exposure. It needs to use tools to enlist more support, or where necessary, weapons to oppose national legislation. It needs to develop national legislation. It needs to further its image," Sample said.

The magazine edtor outlined three goals for IPAA which were later adopted by the board of directors. The first was a major feature article for consumers on the importance of the professional applicator to today's ecology-minded public. The second objective was to generate general publicity releases for consumer news media. The last goal involved the development of operational policy statements which could be used by applicators in the performance of their jobs and by the Association in testifying before legislative hearings and other official functions.

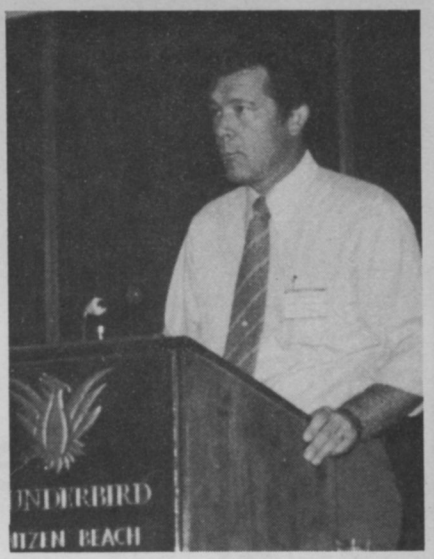
While attendance at this year's meeting totaled 145 with 59 actual members present, it was interesting to note representation by individuals from five states where active chapters have not been established. According to these people, there is concern is their states about pesticide legislation. They came to the meeting to associate and converse with industry leaders about specific problem areas. Of particular note was the extensive use of tape recording equipment. Conferees were anxious to record the program for their own use or for playback to groups of applicators who could not make the meeting.

During the second day of the convention Stauffer Chemical Company presented their famed "Miracle of the Land" audio-visual presentation. It clearly shows the role of agrichemicals in protecting the environment.

W. A. Harvey, extension environmentalist, University of California, Davis, next discussed the problems of weed control and the environment. He said the only reason for any weed control is to change the environment. Thus, when chemicals are use, the environment is altered. Herbicides, to be effective, must become an intimate part of the environment of the target plants.

Dr. J. Gordon Edwards, professor of entomology, San Jose State College, San Jose, Calif. discusses the pesticide issue.

Robert B. Black, industrial hygiene engineer, Health Division, State of Oregon, briefs delegates on operational safety.



Dr. Sidney Siemer, Abbott Laboratories, Fresno, Calif., introduced the concept of biological insect control to IPAA members.

However, if the herbicides moves away from the target or persists too long, problems arise.

The extension specialist pointed out that the effects of herbicides on living organisms have been negligible. True, the environment has been changed, but only because man has willed it. A prosperous, well-populated country is more likely to change the environment to meet changing needs. Herbicides have been a tool rather than a cause of environmental change, he said.

Another program speaker who discussed biological insect control was Dr. Sidney Siemer, Abbott Laboratories. He said that biological insect control includes viruses, rickettsiae, bacteria, fungi, protozoans and nematodes. Narrowing the subject to bacteria, he mentioned that that bacterial pathogens can be introduced and so colonized for long-term regulation and suppression of test species. "Bacterial pathogens can also be used in a manner similar to chemical insecticides for short-term or temporary suppression of insect pests. . . . For example, *Bacillus thuringiensis* has been successfully used for omnivorous leafroller and grape leaffolder control without creating any mite build-up problems or having deleterious effects on leafhopper parasites," he said. Once an application of *B.t.* is made to foliage, a general stoppage of feeding occurs in the first 24 hours,

(Continued on page 27)

The 1973 IPAA board of directors are: (l-r, bottom to top) Ray Collier, Oregon (alternate); Bob Huntwork, IPAA vice pres., California; Don Mock, IPAA president, Washington; Chuck Seibold, IPAA past pres., Oregon; Bill Owen, Oregon; Don Caldwell, Utah (director at large); Lew Sefton, exec. sec., Oregon; Ken Thorpe, recording sec., Oregon; Gary Mulkey, Oregon, Lew Crothers, Washington (alternate); Bob Skanes, Washington; Steve Fisher, Oregon; Milt Ellis, Oregon (alternate); Stan Raplee, Washington (alternate). Not present include: George Harrison, Jack Daniels, Mac Osborne, Alvin Wallman, Charles Bradshaw, Stan Taylor and W. R. Nahmens.

Don Mock (r) was elected IPAA president for 1973. Here, Chuck Seibold, past president, passes the traditional gavel to the new officer.

A banquet dinner was a highlight of the meeting. Shown here are: (l-r) Mrs. Steve Fisher, Mrs. Duane Saxton, Duane Saxton, and Mrs. Jerry Flowers.

Weevil Battalion Charges Water Hyacinth

FOUR years of intensive research in South America by state and federal agencies has isolated an insect for release in Florida to help control the pesky water hyacinth.

First release of the water hyacinth weevil *(Neochetina Cichhorniae* scheduled for Fort Lauderdale in late August under the direction of the Agricultural Research Service of the USDA, the Florida Department of Natural Resources, the Florida Division of Plant Industries and the U. S. Army Corps of Engineers. Additional releases of the eggs of the insect will be made in Gainesville and at points throughout the state within the next few months.

Exhaustive study by USDA scientists in South America found that the insect is a natural enemy of the water hyacinth and is "host specific" — meaning that in the absence of the hyacinth the insect cannot reproduce and dies.

Starvation and plant preference tests proved conclusively that the acquatic insect is safe to be introduced in the Southeastern United States waters to help control hyacinths. To insure that only a pure strain of the weevil would be introduced, arthropods were selected, kept in isolation in Argentina, cultured in the laboratory in quantities for shipment to a Califorina laboratory operated by USDA, bred under strict laboratory conditions and only the eggs were released initially in Florida. Scientists released 500 to 1,000 eggs in Fort Lauderdale.

Water hyacinth control is a multi-million dollar a year expense to Federal and state agencies. The plant is a scourge which blocks waterways, impedes navigation, pollutes water and causes greater evaporation of water through the leaves of the hyacinth. Hyacinths continue to cover more water surface each year and repeated applications of herbicides by Federal, state and local agencies are necessary to keep the waterways open.

The weevil, one of several species being considered for introduction, is about two-tenths of an inch long and mottled grey in color.

The insects belong to a group of aquatic weevils which have a waxy coating, adapting them for survival in water habitats. Water hyacinth weevils can submerge for several minutes below the water surface and can swin clumsily, doing a type of breast stroke, scientists report.

In Argentina, when attack by this insect is severe, according to Dr. David Perkins of the USDA research staff, all leaves of the hyacinth bear a polka-dot pattern produced by the adult feeding. The adult insects feed mostly at night.

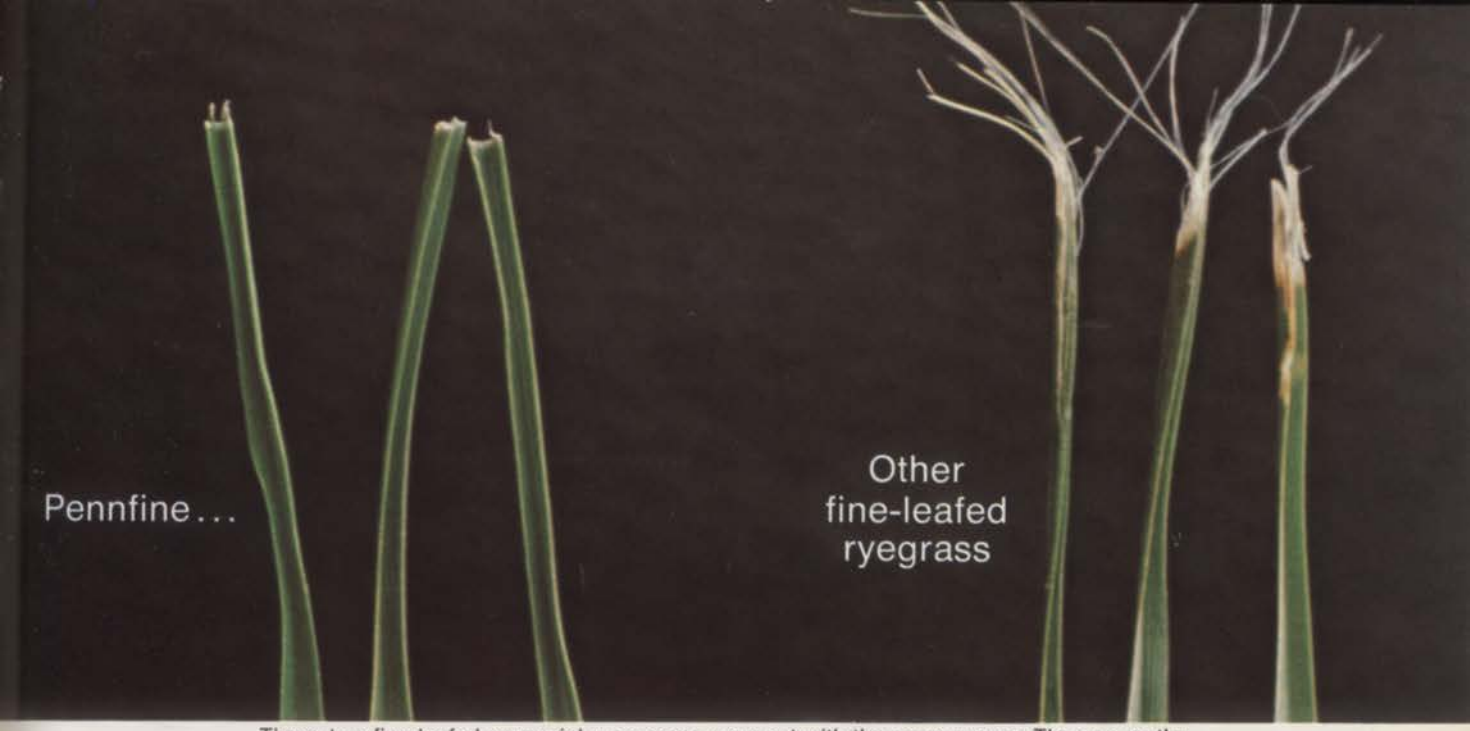
Dr. Perkins also noted that the immature stage of the insect is a small, white, grub-like worm which tunnels into the leaf stem. Damage caused by the worm tunneling into the stem often kills the hyacinth. As the grub stage grows larger, it forms an intermediate pupa stage. To do this, it leaves the leaf stem and enters the mass of roots, where it develops an underwater cocoon. The insect emerges from the cocoon and begins feeding on the leaves of the hyacinth immediatedy. Life span from egg to egg is about three months.

Damage by adults and weevil grubs is often helped by ever-present bacteria and scavenger insects which enter through the feeding spots. The secondary attack, according to Dr. Perkins, amplifies the effect of the weevils. The USDA scientists pointed out that in Argentina there is no control program against the hyacinth, and insect attack in conjunction with other conditions are apparently responsible for the lack of an aquatic weed problem in that country.

Federal and state scientists are optimistic over isolation of the new biological control agent, but temper their enthusiasm by pointing out that the new insect is not the ultimate answer to hyacinth control. "We believe it will be another tool to help control hyacinths," the scientists say.

Funds to support the four years of research on biological control for hyacinths was provided by the U. S. Army Corps of Engineers, and the Florida Department of Natural Resources has supported Dr. Perkins' continued research on the insect since the scientist returned to USDA headquarters in Fort Lauderdale. Further support is being given by the Florida Department of Natural Resources in the continuing program of rearing, release and dissemination of the weevils.

Release of the insects will be closely monitored by all participating agencies.



These two fine-leafed perennial ryegrasses were cut with the same mower. The one on the right shows the fibrous "paint brush" top which is characteristic of ryegrasses. Pennfine, on the left, took a smooth, even cut because it was bred for softer, easier to cut fibers.

Pennfine: the clean-cut perennial ryegrass.

All the new fine-leafed perennial ryegrasses are beautiful. Until the mower comes along. That's the moment of truth for ryegrass. And Pennfine is the fine-leafed perennial ryegrass bred specifically for mowability. You can see the clean-cut look of Pennfine in the photo above. You'll see it in your turf, too.

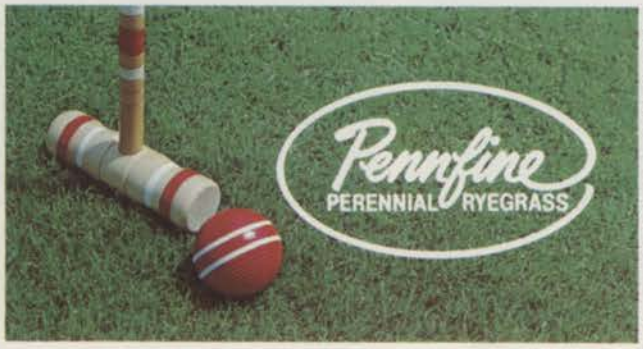
Pennfine vs. other fine-leafed ryegrasses

Developed and released by Pennsylvania State University, Pennfine is the best of the fine-leafed perennial ryegrasses. That's the finding of the trials at University Park, Pennsylvania. Among nine cultivars, Pennfine ranked first in texture, first in density, first in decumbency (low growth), first in tolerance to snowmold and leaf spot. And, of course, first in mowability.

Pennfine mows 'em down

The remarkable mowability of Pennfine — the result of breeding specifically for soft fibers — is demonstrated in the above photograph. It was also proven by the University Park trials. Over a five-year period, Pennfine averaged 8.3 (of a possible 10) in mowability. The next best score was 7.3, and the other cultivars rated considerably lower.

With the finest blade of all the fine-leafed ryegrasses tested, Pennfine is beautiful to begin with. And, because of superior mowability, it stays beautiful. It's also highly compatible with Kentucky Bluegrass, both in terms of appearance and management requirements. If you'd like more information on this clean-cut perennial ryegrass, just send in the coupon.



TO: **Pennfine Perennial Ryegrass**
P.O. Box 923, Minneapolis, Minnesota 55440

Please send me technical information on Pennfine Perennial Ryegrass. ☐ Names of Distributors. ☐

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AN APOPKA, Florida firm is in the process of doubling 30,000 square feet of space for acclimatizing trees and tropical foliage plants for use in interior landscape designs and covered malls.

John's Inc. will be able to acclimatize trees up to 35 feet tall when new sheds are built. Presently Ficus and mahogany trees up to 22 feet tall are the largest in the acclimatizing house.

The firm has been experimenting for several years with the process of decreasing light and withholding water and fertilizer to harden plants to survive in the low light and low maintenance conditions found in interiors and malls.

In 1970, the firm built a 30,000 square foot shed with a network of polypropylene of different degrees of shade plus two different shades of paint on the roof.

The rigid plastic house is 18 foot high at one end and 14 feet high on the lower end. Two other sections of the huge John's nursery also hold an overflow of materials to be acclimatized.

Wholesale value of the plant's being acclimatized is $115,000.

Many plants, especially the larger ones, are moved into the acclimatizing house from almost full sun locations. Over a three-four month period the light intensity is reduced from 1,500-2,000 foot candle power to 400-500 foot candle power.

While the light is being reduced, water and fertilizer is also being decreased to harden the plants to conditions of low maintenance required in most enclosed malls.

Vern Buck, executive vice president of the 38 year old company, said plants brought in from full sun location drop some leaves when brought into the shade house. He said the black olive tree may drop its leaves once or twice but when leaves grow back, the trees are usually ready to sell.

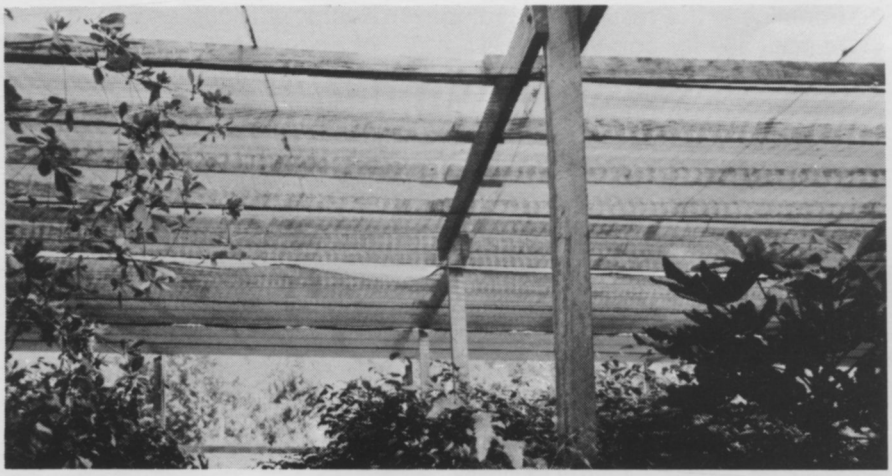
"Various plants take varying amounts of time to harden up but in general, three to six months time will harden up most plants and get them used to low light and maintenance conditions," Buck pointed out.

He suggested the black olive tree is one that should be used more often in interior landscape plans for malls. He said the tree will tolerate light conditions as low as 250-300 foot candle power but 400 is better for best leaf retention.

The shading material is strung on wires underneath the roof of the plastic house. It can be rolled back if desired or another layer can be placed over the first for more shade over a certain section to bring light down to minimum foot candles.

Watering plants in the three-fourths acre house is by hand. In general, water is withheld and plants are kept on the dry side.

Slow release fertilizers and systemic insecticides are used to keep plants in better shape for a longer time and to decrease the amount of



Polypropylene is hooked to strands of wire underneath the roof of John's acclimatizing house. Also, two different shades of paint are used on the rigid plastic roof.

The acclimatizing house is 30,000 square feet. Robert Scott carefully checks the condition of all plants valued at $115,000.

Trees, palms and tropical foliage plants are acclimatized at John's Inc. by use of shade and reduction of water and fertilizer.

maintenance to be performed by the buyer of the plant.

Once a month inventory is taken and a new price and quantity list mailed to a selected group of buyers over the country who use and specialize in interior landscape plants. Wholesale price of the plants ranges from $4 to $2,000. for the largest trees.

Some of the plants in the acclimatizing house include silk oak and Norfolk Island pines, Ficus such as benjamina, decora, pandurata, areca, Rhapsis, and Phoenix Roebelini palms and other palms.

There are also various philodendrons such as selloum, cordatum, and pertusum in pots and with poles. Vern Buck commented he would like to see more rigid specifications in bid jobs concerning acclimatizing plants for interior use. "This would help interior landscape people do a better job. Using acclimatized plants may cost more initially but they are better looking plants and replacement costs would be lower in the long run," he said.

William H. Baker, ASLA member with the Winter Park, Fla. firm of Tom H. Wallis and Associates, said landscape architects have been limited in their use of interior landscape plants.

He said if nurseries can do more with materials specifically for this use, then landscape architects will have a broader spectrum from which to choose.

"By acclimatizing plants, more and more southern plant materials can be used in enclosed northern malls which are looking for a greater variety of greenery," he said.

Mr. Buck, who has been with John's for 37 years, said the firm has 8½ acres of greenhouses, 23 acres of shade house and 20 acres of podocarpus in open fields.

He said John's is doubling the amount of acclimatizing space to take care of demand for trees and tropical foliage plants that will thrive under low light and low maintenance conditions.

This ficus Pandurata or fiddle leaf fig (foreground) will be ready for a mall or similar interior in a few weeks. Light intensity is reduced over a 3-month period from 1,500-2,000 foot candle power to 400-500 foot candle power.

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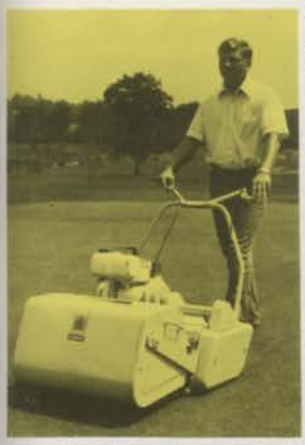

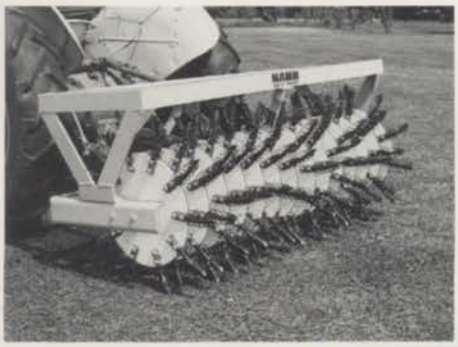

Well Received

I want to thank you for reviewing my booklet, HOME LAWN CARE, in the August issue of your magazine. Several orders have already been received and many many lead to big sales in the future . . . **Melvin J. Robey, West Lafayette, Indiana.**

As Good As Done

As Park Superintendent for the City of New Richmond, I find the material presented in your magazine WEEDS TREES AND TURF very helpful in development and maintenance of our park systems. However since I must go to the library to read each issue, I sometimes miss a month's copy. Therefore I would like to have my name added to your list.

I was very surprised to find myself pictured on a front cover of a recent issue. The cover showed several of us standing around an elm tree in Eau Claire, being shown how to use the chemical called Benlate. This summer I used Benlate a great deal in New Richmond to help stop the spread of Dutch Elm Disease . . . **Curt Gerken, River Falls, Wisconsin.**

Strong Hunter Reaction

I have enjoyed reading your magazine and its many informative articles but a recent article just didn't seem fair.

The article was concerned with expelled shot laying around lake bottoms and other wildlife habitat.

First of all it used estimates of either two or three million. Now there is a great deal of difference between the two.

It referred to the wildlife as our feathered friends.

Many people who do not hunt or are against hunting and guns really take these articles seriously. They think all sportsmen are either insane or have some kind of mental problem.

All articles like yours that misprint the facts or guess at estimates only do harm to a sport enjoyed by a great many people.

If it were not for sportsmen paying tax on shells and guns and purchasing licenses there would be a great deal less of any kind of wildlife. There is very little money spent by people like the person who must have written this article to support our wildlife.

I am a grounds superintendent, and am very much concerned in the out of doors in all aspects.

Please remember no sportsman wishes to deplete our wildlife resources. We only wish to keep them plentiful so we can continue our sport . . . **Ronald E. Fulkeod, Fort Collins, Colorado.**

A Real Weed Problem

. . . How do you get rid of tules. We have two kinds that give us trouble. I really don't know the correct names but one is the round tule and the other is a flat tule. On a dry year, we can disc and disc and chop them back in good order but this is not always the case. Is there any good material that will go down and kill the roots? I have tried Ureabor which does well on everything but does not seem to affect tules . . . **Jim B. Nielsen, Watsonville, California.**

ANSWER: *We don't know what tules really are. We'd suggest contacting an area extension weed specialist or send a sample of the weed to your local Land Grant University.* **Editor.**

Trees Suffer Stress Plants Pathologist Says

Stress.

You've heard of it. You know humans and animals suffer from it. But did you know trees also suffer stress?

Today, many trees that line urban streets and communities are showing signs of stress, says Donald H. Scott, Purdue University extension plant pathologist.

Weather conditions of recent years and tree location figure prominently as causes of this stress, he adds.

While maples are the most severely affected, damage is also apparent among pin oak, ash, locust and other street planted trees.

One symptom of stress is thin foliage.

Another stress symptom, known as leaf scorch, appears on trees in late summer and early fall. Leaf scorch is evident in the browning and dying of leaves at the margins and progressing toward the mid vein.

Shortly, still another symptom of stress may appear, warns Scott. This is premature fall coloration and defoliation of leaves. Many affected trees already have started to die back from the top or have individual limbs that have died.

Open winters, extreme and rapid changes in winter temperatures and drought are all weather conditions that have affected trees in the last three or four years, the plant pathologist adds. Besides weather conditions street planted trees sustain stress from root systems restricted by sidewalks, streets and building.

Futhermore, the root systems of these trees are often damaged by digging, by continuous compacting of the soil or by a buildup of salt concentrations in the soil from deicing operations. Then, too, trunks of such trees are often scarred by lawnmowers, automobiles or other mechanical devices.

Symptoms of stress often resemble symptoms of an infectious disease. For the most part, however, plant pathologists at Purdue have been unable to isolate any infectious disease agent from a majority of the trees studied.

Symptoms of stress generally become progressive, notes Scott. Affected trees sometimes die unless the stress factors are removed. Removing stress is difficult and often impossible, he realizes, especially with trees planted along streets.

Proper fertilization, pruning and watering of trees, however, will prolong their useful life, he concludes.

Golf Course Builders Prepare Membership Directory

A special membership directory of the nation's golf course contractors and suppliers is being prepared by the Golf Course Builders of America.

Harry J. Lambeth, executive director of the Washington-based organization, says the booklet will be pocket-sized and feature a full page for each Builder member. Associate or supplier members will be given a half-page. The publication will be sent at no charge to golf course architects and to persons planning golf courses.

The Golf Course Builders of America, now two years old, has a membership of 35 firms stretching from British Columbia and California to Florida and Massachusetts. Pennsylvania and Ohio lead the states in members. Pennsylvania has six members and Ohio five. There are three from Texas.

—meeting dates—

Ohio Parks and Recreation Conference, Cleveland-Sheraton Hotel, Cleveland, Ohio, Nov. 13-15.

Tidewater Shade Tree Conference, 2nd annual, Norfolk Botanical Gardens Auditorium, Norfolk, Va., Nov. 14.

Metropolitan Shade Tree Conference, Lubber Run Recreation Center, 300 N. Park Drive, Arlington, Va., Nov. 15.

Washington State Weed Conference, Chinook Motel and Tower, Yakima Wash., Nov. 15-17.

Nebraska Turfgrass Conference, Kellogg Center, University of Nebraska, Lincoln, Nebr., Nov. 20-22.

Oklahoma Turfgrass Conference, student union, Oklahoma State University, Stillwater, Okla., Nov. 29-30.

Texas Turfgrass Conference, Memorial Student Center, College Station, Tex., Dec. 4-5.

National Agricultural Aviation Association Conference, 6th annual, Las Vegas Hilton (international) Hotel, Nev., Dec. 11-14.

Ohio Turfgrass Conference and Show, Franklin County Memorial Building, Columbus, Ohio, Dec. 12-14.

Western Association of Nurserymen, 83rd annual meeting and trade show, Plaza Inn, Kansas City, Mo., Jan. 7-9.

North Carolina Nurserymen's Short Course and Trade Fair, 36th annual, University Student Center, N.C. State University, Raleigh, N.C., Jan. 7-9.

Golf Course Superintendents Association of America, 44th annual International Turfgrass Conference and Show, Boston, Mass., Jan. 7-12.

New York State Arborists Convention, Annual, Nevele Country Club, Ellenville, N.Y., Jan. 14-17.

California Weed Conference, 25th annual, Disneyland Hotel, Anaheim, Calif., Jan. 15-17.

Michigan Turfgrass Conference, 43rd annual, Kellogg Center, Michigan State University, E. Lansing, Mich., Jan. 16-17.

Southern Weed Science Society, 26th annual meeting, Jung Hotel, New Orleans, La., Jan. 16-18.

Ohio Chapter, International Shade Tree Conference, annual meeting, Sheraton-Columbus Hotel, Columbus, Ohio, Jan. 21-25.

Rocky Mountain Regional Turfgrass Conference, 19th annual, Colorado State University, Fort Collins, Colorado, Jan. 25-26.

Penn-Del Chapter, International Shade Tree Conference, annual meeting, Marriott Motel, Philadelphia, Pa., Jan. 25-26.

Annual Winter Seminar for Commercial Arborists, O'Hare Concord, Rosemont, Ill., Jan. 30.

Virginia Turfgrass Conference, Sheraton Motor Lodge, Fredericksburg, Va., Jan. 30-31.

Midwestern Chapter, International Shade Tree Conference, annual meeting, Holiday Inn, 1926 W. Wisconsin Ave., Milwaukee, Wisc., Feb. 6-8.

Northern California Turfgrass & Environmental Landscape Exposition, 9th annual, Hall of Flowers, San Mateo County Fairgrounds, Feb. 7-8.

Professionals Turf & Plant Conference, 5th annual, Holiday Inn, 80 Clinton Street, Hemptead, L. I., N. Y., Feb. 16.

EDITORIAL *(continued from page 4)*

Alaska, Connecticut, Indiana, Iowa, Maine, New York, Oregon and New Jersey. Agriculturally oriented administrators can not and should not be expected to speak for the professional applicator on every interpretation of the law. The applicator must speak for himself and his organization.

In the State of Washington, the governor appoints, among others, three licensed applicators to sit on the Pesticide Board. Likewise, Kansas' 13 member pesticide board acting in an advisory capacity, includes both a custom ground applicator and custom aerial applicator.

History has proved that without representation, laws become superficial and anarchy reigns. We urge state administrators concerned with use and application laws to look favorably to the addition of a certified professional applicator to the pesticide board. The consequences of ignoring this issue could be tantamount to another Tea Party.

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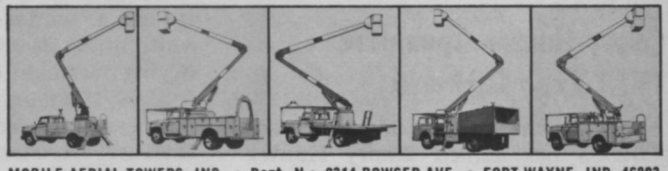


MOBILE AERIAL TOWERS, INC. • Dept. N • 2314 BOWSER AVE. • FORT WAYNE, IND. 46803

Rohm and Hass Company Discovers New Rodonticides

A new class of highly effective rodenticides has been announced by the Rohm and Haas Company.

Classed as carbamates, the new rodenticides have high activity against rodents, yet do not pose a hazard to other species. A wide margin of safety is present to dogs, cats, chickens, pigeons and various songbirds. Secondary hazards in feeding rats killed by the rodenticides to dogs and cats have resulted in no adverse effects.

According to a Company spokesman, only a single feeding of a poisoned bait is required. Baits containing the rodenticides are readily accepted by rodents. Even when the bait contained 10 percent of the rodenticide — more than ten times the amount required for fatal results—the rats ate the poisoned bait without hesitation and died.

Operating Cost Study Released By Nursery Industry

One of the nursery industry's most applauded research publications has been released for the seventh consecutive year by the Horticultural Research Institute. It's the HRI Operating Cost Study covering the year 1971.

The 31-page document actually presents three separate cost studies in a single volume, permitting each basic type of business in the industry (wholesale production, landscape nursery, retail garden center) to compare its operating costs with similar types and sizes of businesses. Detailed listings of the various cost items related to the operation of a business are given in percentages of total sales, making the publication an efficient, easy-to-use management tool.

The Operating Cost Study has been sent, without cost, to HRI members and participants, and is available to others at a cost of $5. Inquiries should be directed to Horticultural Research Institute, 230 Southern Building, Washington, D.C. 20005.

Emory Hunter Appointed 1973 Expo Chairman

The Northern California Turfgrass Council has named Emory Hunter of Warren's Turf Nursery as chairman for the 1973 Exposition.

Confirmation of the appointment was made at the August board meeting of the Council.

Exposition sites and dates have not been selected. Persons interested in working on the various committees for this show are asked to contact Emory Hunter or write to the Northern California Turfgrass Council, P. O. Box 268, Lafayette, Calif. 94549.

Calif. Pesticide Applicators To Form New Association

Pesticide Applicators and Advisors Association of Southern California, a new group, is being formed to head off emotional legislations on the banning of certain environmental protection chemicals.

"Ground rig pesticide applicators and advisors have been inadequately represented both in Sacramento and in Washington D. C.," says Paul G. Walker, chairmen of organization for the new group. "Anyone in the ground rig application business is welcome to join this group and pledge support for the safe and wise use of environmental protection chemicals."

The kickoff meeting will be held November 17 in the Balboa room, Newporter Inn, 1107 Jamboree Rd., Newport Beach. Cocktails and dinner at 7:30 p.m. will precede the adoption of by-laws and election of officers.

All licensed applicators /advisors are invited to attend. For reservations, contact Paul G. Walker, 4358 Poplar St., San Diego, Calif. 92105 or call (714) 281-0470.

Grass Identification Guide Available From O.M. Scott

Here's an identification guide that was designed to be carried into the field.

It's the ProTurf Identification Guide to Grasses, a pocket-sized field manual written for experienced turf managers as well as students and laymen.

Sixty varieties of grasses are cross-indexed, first by characteristics, then by name, while graphic black-and-white illustrations demonstrate identifying features of each grass. Price is $2.00, including professionals' discount. Order from Jim Converse, ProTurf Division, O. M. Scott & Sons, Marysville, Ohio 43040.

Conrad L. Scheetz Is New GCSAA Exec. Director

A Drexel University graduate with a "consistent record of successes, especially in association management activities," has been selected from a field of 325 candidates as executive director of the Golf Course Superintendents Association of America.

Conrad L. Scheetz, 42, assumed the position in early August. It was vacated earlier this year by Ben J. Chlevin who resigned in January to return to public relations within the golf industry.

"We're very fortunate to have a man with 'Connie" Scheetz's many years of varied business experience," said GCSAA president, Robert V. Mitchell. "The valuable skills he brings to the GCSAA include not only a well-rounded background in association work but also a knowledge of budgets, personnel, accounting, data processing, membership services and conference management, all of which are vital areas in serving a growing membership and expanding member services."

Scheetz was formerly business manager with International Reading Association. During his seven years of employment, the Newark, Delaware based firm experienced an almost 60 percent jump in membership. Member services also increased and the budget quadrupled to over one million dollars.

The new director has also worked extensively with budgets and electronic data processing as head of budgets for the data processing division of Educational Testing Service in Princeton, N.J. Earlier in his career, he served as a project administrator in the missile and surface radar division of RCA in Moorestown, N. J.

Scheetz is a member of the Tau Kappa Epsilon fraternity and the American Society of Association Executives. He is married and has four children.

industry people on the move

DR. ROBERT E. HANNEMAN, JR., joined O. M. Scott & Sons, Research Division. He will be working in the seed production and seed research group at Salem, Ore.

* * *

JERRY L. ERICKSON, ROBERT L. LINDSEY, A. MILTON WALSH, elected vice presidents of Asplundh Tree Expert Company. Erickson will handle operations of the field management corps in western Pennsylvania; Lindsey will manage the company's tree trimming operations in most of Connecticut, all of New Hampshire and also oversees the underground work in Massachusetts; and, Walsh is charged with the management of all operations for the several utilities in the state of New Jersey.

* * *

HAROLD F. DEPUE, promoted to vice president of sales and marketing for Ackley Manufacturing Co.

* * *

GORDON A. BRANDES assumes the new position of manager of the Morris Arboretum following retirement from Rohm and Haas Company. The Morris Arboretum is part of Penn State University and is a 175 acre "museum of living plants" located in a suburban area of Philadelphia.

WELTON MOOREHEAD, transferred from Tulsa, Oklahoma to Dallas, Texas by Thompson-Hayward Chemical Company. He will call on agricultural and industrial accounts in the Dallas and Northeast Texas area.

* * *

HERBERT V. KOHLER, JR., elected chairman of the board and chief executive officer of Kohler Co. He succeeds **LYMAN C. CONGER** who retired. Kohler is a grandson of John Michael Kohler, founder of the Company in 1873.

* * *

CHANCE HILL, JR., named director of parks for the City of Long Beach, California, following the death of **DON OBERT,** 67, who held the position since its inception in 1954. **WILLIAM T. BELL,** named assistant director of parks, the position vacated by Mr. Hill.

* * *

ROBERT P. KNUTSON, appointed operations manager of Bolens-Division of FMC Corporation, Port Washington, Wisconsin. He replaces **HOWARD L. McPHERSON** who was promoted to manager of the Pomona, California operations of Wayne Manufacturing Company. Wayne recently signed a merger agreement with FMC.

* * *

ROBERT M. BOOK, named group vice president of agricultural marketing for Elanco Products Company, a division of Eli Lilly and Company. He succeeds **WILLIAM G. DAVIS, JR.** who was recently named a group vice president for Eli Lilly International Corporation.

IPAA REPORT *(from page 17)*

but the insect remains on the foliage for some time.

Siemer said that biological compounds do not act as quickly as present insecticides. This is primarily due to the fact that the biological compounds control by stomach action causing a paralysis of the stomach muscles.

"Biological control is not magic. It will be used in conjunction with chemical control for many years to come, and even if it is successful in completely replacing organic chemical usage, it will require an extremely high level of technical competence on the part of all people involved," he concluded.

This year's program included topics for everyone. Of particular interest to the professional applicator was a presentation on "Safety and Your Operation" by Robert B. Black, industrial hygiene engineer, State of Oregon. He cautioned members that much of the safety of application of pesticides rests on the user. "We must continue to stress personal hygiene and cleanliness," he said.

A high pressure sprayer manufactured by Wayne Engineering Corporation was demonstrated for delegates by Rick French, western regional manager, and Herb Perrin, Schetky Equipment Corporation, Portland, Ore.

Black outlined in detail the four routes of entry of pesticide compounds into the body: dermal, respiratory, oral and through cuts or abrasions in the skin. He said that the dermal route is the most important in relation to applicators applying liquid formulations of compounds. "This route has undoubtedly been responsible for many poisonings of workers, especially where they were using organophosphates," he said. Recommendations of proper protective clothing, gloves, shoes and headgear were made. It could be concluded that this speaker's comments affected a greater number of applicators present and absent than any other presentation of the convention.

Also on the program was an interesting discussion of the use of infra-red photography in detecting disease, fire and insects in forests. John F. Wear, forester, U.S. Forest Service, said that this false color film has been used successfully in studies of soil condition, hydrology, and other areas of scientific endeavor. For the applicator, it holds potential in detecting disease and insect damage before the natural signs of stress appear.

A number of changes in the bylaws of IPAA were passed during the annual board meeting. These include a new dues structure to allow small groups to form local chapters. Also, one person in any state may now join IPAA as a member at large. The board also elected Don Caldwell, Salt Lake City, Utah, as a board member at large, a new position.

New officers of the Association are: Don Mock, president; Bob Huntwork, vice president; Ken Thorpe, recording secretary; and Lew Sefton, executive secretary and treasurer.

Figure 2. Comparative tolerance of three turfgrasses after being held 150 days in an ice block. Toronto creeping bentgrass (l), Merion Kentucky bluegrass (c), and annual bluegrass (r).

TURFGRASS KILL *(from page 15)*
riod or the use of excessive quantities of nitrogen during late summer fertilizations.

The second nutritional consideration is to ensure that there are adequate potassium levels available to maximize the low temperature hardening capability. (Under Michigan conditions, a nitrogen-potassium ratio somewhere in the order of 2:1 to 3:1 has proven most effective.)

Other beneficial cultural practices involve (a) raising the cutting height to a moderate degree, (b) elimination of thatch problems that elevate the vital meristematic tissues above the protective layer of the soil, and (c) avoiding excessive irrigation that will waterlog the soil and increase the degree of crown hydration.

Insulation against direct low temperature kill can also be provided by placing an insulation cover over turfs that are of great importance and are particularly prone to low temperature kill. Materials that can be used effectively include the Conwed Winter Protection Cover, Soil Retention Mat, use of natural organic mulches such as straw, or enhancement of snow cover accumulation by means of snow fence or brush.

ICE SHEETS

Contrary to statements appearing in some literature, ice sheets that cause oxygen suffocation or lethal gas accumulations under the ice cover are not a major concern in terms of turfgrass winter injury. Most perennial cool season turfgrasses will survive at least 60 days of ice coverage. Serious injury to annual bluegrass can be anticipated if the ice cover remains in place for a period of 70 to 90 days (Figure 2).

Merion Kentucky bluegrass and Toronto creeping bentgrass have been subjected to ice coverage for up to 150 days with no significant injury. This length of ice cover will rarely occur in most sections of the United States. More commonly, turfgrass injury associated with ice and snow covers occurs prior to freezing or during thawing when the standing water results in an increased crown hydration level. *Serious kill may occur if the temperature subsequently drops at a rapid rate to below 20° F.*

REMOVING ICE AND SNOW COVERS. The best way of minimizing damage associated with ice covers is to ensure that there is adequate surface drainage from the area. From a turfgrass standpoint, the plants should enter the winter at a moderate growth rate with adequate but not excessive nitrogen nutritional levels of potassium nutrition.

The situations that have been documented where ice removal has reduced the degree of winter injury have usually been associated with direct low temperature kill. Rather than breaking up the ice barrier to enhance gas movement, the professional turfman was actually mechanically removing water from the turfgrass area; thus minimizing the degree of crown hydration that could occur and in turn reducing the chance of direct low temperature kill.

Where crown hydration due to standing water and subsequent direct low temperature kill associated with the ice cover is of primary concern, it is important to remove the ice cover and snow prior to periods of anticipated thaw. One should not attempt to remove the entire ice or snow cover but should leave a protective layer of between one and two inches remaining on the surface. This modest layer will serve to protect against winter desiccation injury and will also function to a certain degree in insulation against direct low temperature stress.

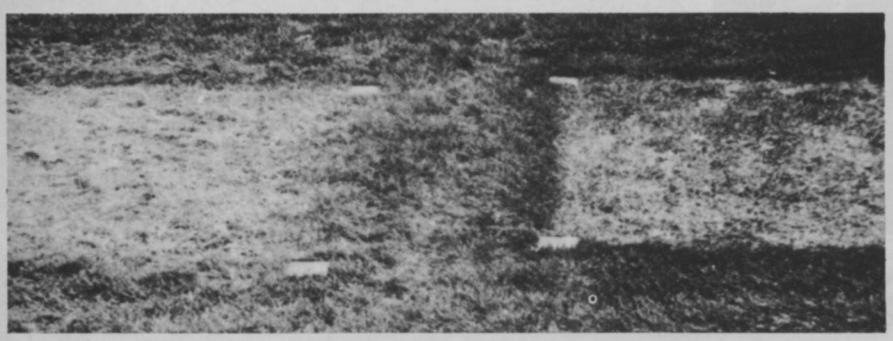
It is preferable to remove the ice and snow during periods when the turf and underlying soil are frozen in order to minimize damage to the surface itself.

Snow blowing equipment or plows can be used in the removal of snow while thick layers of ice may have to be chipped and broken up by use of such equipment as powered rototillers. The latter procedure has been used quite effectively on sports fields in England.

Where poor drainage and crown hydration-low temperature stress problems are not a serious concern, the thaw and breakup of ice covers can be enhanced by placing a black organic material on the surface of the ice. On sunny days this functions quite effectively in absorbing the incident radiation and generating heat which will assist in thaw of the ice sheet from the surface rather than from the underside. Milorganite has been utilized very effectively in this regard.

Clear ice sheets frequently thaw from the underside when periods of high intensity sunlight occur. Under this condition it is not uncommon for a considerable quantity of water to be trapped under the ice sheet for an extended period of time which increases the turfgrass crown hydration level. If this thawing period with standing water under the ice sheet is followed by a severe freeze to below 20° F., the chance of direct low temperature kill is quite high.

Figure 3. Serious damage to a Kentucky bluegrass turf resulting from one person stepping uniformly over two 4 x 4 foot areas one time when two inches of wet, slushy snow was present and a severe freeze occurred the following night.



The placement of a black material on the surface of the ice will enhance surface thawing and more rapid breakup and drainage of water from the area.

TRAFFIC EFFECTS. Traffic is frequently a consideration on snow covered turfgrass areas that are utilized for recreational purposes as well as the areas immediately surrounding ice rinks.

Damage can be of two types. One involves traffic during moderate cold periods when a wet, slushy condition exists. The traffic forces the down into intimate contact with the turfgrass crowns which in turn increases the crown hydration level. If the effects of traffic on this wet slush are followed by a rapid freeze to below 20° F., there is a high probability of serious damage to the crowns, rhizomes, stolons, and roots (Figure 3).

The second type of injury may involve the use of motorized snow vehicles which, on thin snow covers, can mechanically disrupt or tear out pieces of turf by their abrasive action.

PREVENTING TRAFFIC INJURY. The first consideration so far as traffic is concerned is to **restrict** these activities during periods when a wet slushy condition exists. *This is one of the most important preventive measures.*

Snowmobile traffic is a more recent concern in terms of turfgrass winter injury. Serious damage and thinning of turfs can occur if snowmobile traffic is not controlled or restricted under certain conditions. Damage to dormant turfs is most common (a) during periods of minimal snow accummulation, (b) during wet slushy periods of alternate freezing and thawing, and (c) on trails where the traffic is intense causing rutting and removal of a major portion of the protective snow cover.

Under most conditions it is preferable to have a minimum of four to six inches of snow cover present over the turfgrass area. The minimum protective snow depth is less for compacted snow than for loose snow. Placing traffic barriers such as snow fence on high value turfgrass areas where any degree of injury would be costly should also be considered.

Finally, the development of specific snowmobile trails should be considered on sites where intensive snowmobile activity is anticipated. This will encourage travel on locations that are less critical in terms of turfgrass damage.

Turfgrass Ice Rinks

In discussions associated with ice covers and winter injury, the question of proper utilization of ice rinks on turfgrass areas is frequently raised.

Ice rinks can be effectively used on turfgrass areas with minimum permanent damage providing certain key considerations are followed.

First of all, it is very desirable to have a site where the existing turf is composed of the more low temperature hardy turfgrass such as creeping bentgrass or Kentucky bluegrass.

Second, the surface contours of the site on which the ice rink is to be constructed should be such that the water will drain rapidly from the area during late winter or early spring thaws.

Third it is preferable to have at least a two to three inch layer of compacted snow established under the ice sheet to provide a protective insulating zone for the turf. On smaller ice rinks, the use of a polyethylene cover that protects against standing water in contact with the turf will minimize direct low temperature kill.

The final consideration is to be sure that the appropriate preventive snow mold fungicide has been applied to the turf prior to establishment of the snow cover and ice sheet.

The ice should be formed by the application of water at very low rates over an extended period of time during the night when air temperatures are below 20°F. The flood application of water to a depth of one to two inches followed by slow freezing over a long period of time is not desirable due to the increased likelihood of direct low temperature kill to the turf.

The final consideration is during the thawing period in the spring. It is important to check the ice rink frequently at this time to ensure that no ice dams or other problems develop that result in water standing on the turf for an extended period of time. *All precautions should be taken to ensure rapid drainage of excess water from the area.*

Marketing Order Concept A Necessity For Sod Producers

By TONY TASHNICK
Secretary
Sod Growers Association of Michigan

IN 1969, LIFE magazine surveyed the American public to gain insight into the demand that Americans would make on the economy during the decade of the seventies. Leading the list, before all of the so-called necessities of life (nice house, car, full pantry, etc.) was "Grass and Trees around me!"

We seem to be at the right place, at the right time, with the right product. But as one sod grower coyly put it, "We don't seem to be able to do anything but lower the price."

Few growers realize the economic impact of our industry, or the amount of business activity that our 39 million yards of sod are able to generate. We are so busy with the everyday job of getting that seed down, or that flooded spot drained, or that truck loaded, we can't comprehend the problems that would arise if the sod market should collapse.

Growers who were formerly landscapers would go back to landscaping; farmers would go back to the more profitable crops of corn and tomatoes.

Before that happens though, indications are that in order to stay in the sod business, the sod grower is going to be required to sell his crop to the home owner and builder by getting out and laying sod himself or combining with an already established sodding firm.

The present trend in the landscaping business is to deal exclusively in trees, shrubs, flowers and grass seeding and leave the sodding to the "fly-by-night," the layed-off factory worker and the sod grower. They can't waste their time on sod. It's a low profit item. A no profit item.

Presently, there is no distinction between retail trade and wholesale trade. The home owner can often have sod layed for the same price that the legitimate landscaper can have quality sod delivered. And the home owner will be sold poor quality sod.

The sod grower, in order to generate a cash flow adequate to cover expenses, has been obliged to provide more and more services at or below cost. We have thereby succeeded in cutting out our best salesmen and most reliable customers, the legitimate landscape nurseryman.

Attempts have been made to find solutions by the Sod Grower Association of Michigan, and the Sod Producer Association of Michigan before it. Many suggestions were put forth; some were implemented. For example, the credit report system is somewhat successful, but many of the people on it are still hitting growers with credit problems.

A pricing agreement was tried. It worked for a while, but was eventually eroded by growers who found it economically impossible to either commit themselves or maintain a non-commitment.

The market report was able to provide useful information to some growers, but could not be sustained.

An acreage assessment to provide funds for an executive secretary and advertising program was initiated, but money had to be returned due to a lack of cooperation on the part of the majority growers.

All of these abortive attempts to solve the sod industry's ills only succeeded in creating the feeling that nothing can be done without having means of enforcing industry wide agreements. At meetings sod growers have been extremely reluctant to bring up the subject of pricing because many have had to maintain the 33¢ price and lost business as a result.

As a last resort, directors of the Sod Growers Association of Michigan formed a committee to investigate the marketing order concept and its possible application to the

A Marketing Order Explained . . .

What is a marketing order? George Stachwick, program director agricultural marketing at Michigan State University, defines it as "a self-help marketing program that agricultural producers can implement to solve a wide range of problems through unified action."

The purpose of a marketing order is to increase and stablize a grower's income and to promote orderly marketing of sod. Every order is based on enabling legislation. This legislation outlines the procedure that must be followed in initiating, administering and dissolving an order as well as types of programs that are permitted under it.

Acocrding to Stachwick "a marketing order is not a fixed entity which can be described and understood in unchanging terms. Marketing orders provide a kit of tools among which choices must be made to select the combination best suited to a given marketing situation."

Sod growers must work together to make a marketing order succeed. Under the terms of the order, growers control the flow of sod to the market and eventually enable all growers to ask a better price for sod. The order is controlled and operated by sod growers. Government participation is strictly through advice and enforcement of the order.

Why are not other industries using marketing orders? Many are, including fruit, milk, tobacco and cranberry industries. Generally, a marketing order is most effective in situations where the production and/or marketing area and the marketing problems are limited and definable, and where producers have common economic interests, Stachwick concludes.

Load It With Logs... Then Chew 'Em To Chips

Here's a powerful, all-hydraulically operated unit that fits right in with today's modern emphasis on environmental control... Vermeer's New 671 Log Chipper. Eliminates tree and log disposal problems quickly, safely, economically. Load it with logs, old lumber, railroad ties, decayed telephone poles; then chew 'em to chips in minutes for valuable mulch, bedding, ground cover, erosion control, etc. The 671 Log Chipper .... great for cities, parks, landscapers, contractors, utilities and tree service firms everywhere. Write for more information and complete literature. Better yet, ask for a free demonstration.

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It's automatic! Just load any log or piece of wood—up to 4' wide, 6' long—into the hopper... where carbide-tipped cutting teeth chew it to chips in minutes. Handy conveyor then deposits chips in truck for easy disposal.

For More Details Circle (114) on Reply Card

sod industry. It had been suggested from time to time by various sod growers, but never given serious consideration.

The result of this investigation is the current plan to initiate action in developing a marketing order. I have found a positive response in about 80 percent of the sod growers in Michigan to the concept.

There are presently 134 marketing orders in effect throughout the United States. Some are extremely successful, others are not so successful. The degree and speed of success appears to be determined by the extent to which the particular commodity's market had deteriorated before the growers initiated the marketing order.

The outlook for the sod industry may appear to be good for the next two or three years, but it will only take one good year to stimulate production which will soon outstrip demand. Already some large farms are doubling their production in anticipation.

We are acting at a time when the prospect of over extreme supply is still ahead of us. By establishing controls now, at a time when the market is expanding naturally, the chances of a successful marketing order are greatly enhanced. The Market Development Program would be able to insure against any reductions in allotments, no matter what turns the economy takes, and increased production would be indirectly increased by the anticipated demand.

This business of fighting and squabbling among ourselves is a waste of time and money. We must come together and with a united effort get about the business of selling sod. The marketing order is a tool that we can use to sell sod. The time for the marketing order is now.

EDITOR'S NOTE:

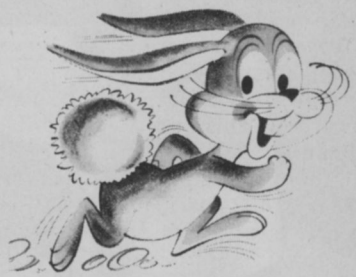
At presstime the Sod Growers Association of Michigan have presented James Coddington, USDA Consumer and Marketing Service, with a proposed marketing order. Pending review by the legal department, an acceptable version will then be presented to all interested parties.

Discussion of the proposed order is scheduled in Parlor C, Union Building, Michigan State University, December 6, 1972 at 9 a.m. The meeting will be sponsored by the Sod Growers Association of Michigan and the Michigan Cooperative Extension Service.

According to Tony Tashnick, SGAM secretary, the program is to educate sod producers and handlers as to the contents of the marketing order so they may intelligently represent themselves at the official public hearings to be called by the Secretary of Agriculture, USDA. Tentative date of the public hearings is late January.

All U.S. sod growers are invited to attend the educational meeting. For reservations, contact Tony Tashnick, SGAM secretary, 60 Rush Lake Road, Pinckney, Michigan 48169. Phone (313) 878-3347.

For fastest-starting turf



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More Park is seeded each year in the U.S. than any other certified variety of bluegrass.

The 1972 seed crop is the best ever. We recommend that you order your supplies early.

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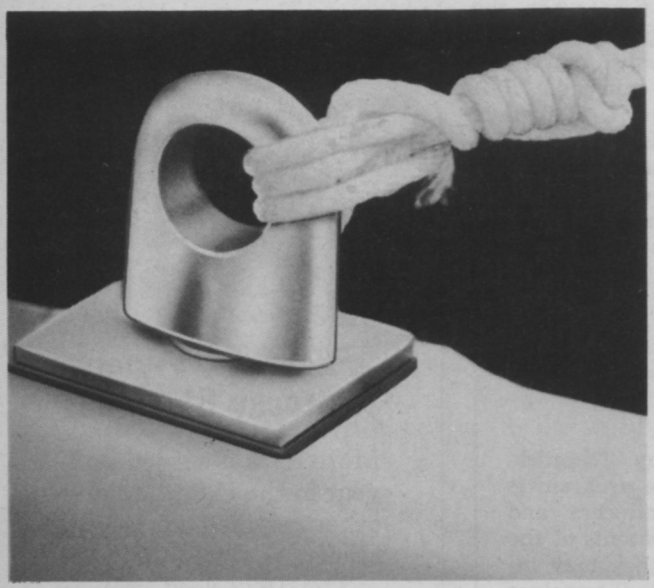
WHIP-END DIP: Marine Development & Research Corp., Freeport, N.Y.

Seal any thickness rope end from ¼ inch to 5 inches with this new liquid vinyl compound. It automatically sets into tough, flexible and permanent rope end seals for only pennies per application. One application is all that's needed. Ideal for arborists and other tree men who regularly use ropes. Resistant to gasoline, oil, grease, alcohol and even acids. Works well on all types of rope such as manila, nylon and polyethylene. Can also be used to seal electrical connections. For more details, circle (701) on the reply card.

FIBREX ROOT INSULATOR/WEEDER: Masonite Corporation, Chicago, Ill.

Here's a decorative bark ground cover with a weeder added. Treated with DCPA, this decorative bark is registered for use as a ground cover around trees, shrubs, ornamentals and other desirable vegetation. It protects plant roots from extremes of heat and cold, stops soil splashing and washing and doesn't "tie up" nitrogen in the soil. The product comes in a striking tear-resistant plastic bag that "breathes." One 2-cubic-foot bag covers 24 square feet at a recommended 1-inch depth. Early application in the growing season provides season-long weed reduction and protects plant roots from extreme summer heat. In winter, this insulating cover raises root-zone temperature above air temperatures and lessens the risk of freeze damage. For more details, circle (702) on the reply card.

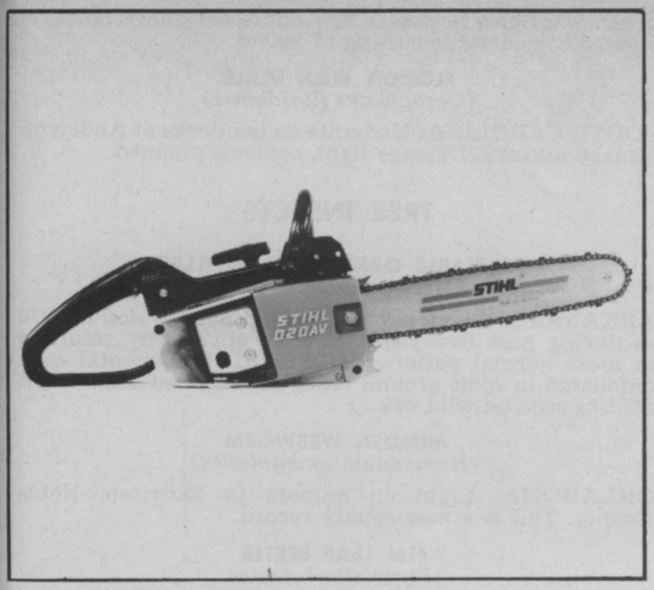


UNIVERSAL TIE DOWNS: Albert R. Norton Products, Oakland, Calif.

Sturdy, flexible and economical. Tie downs made from machined steel and chrome plated for beauty and long life. Just what every owner of a pickup truck needs to keep the load tied down. These units are installed in minutes. No special tools or skills are required. Eye diameter is one inch. When the tie down is set in stake hole and tightened, the rubber expansion washer expands inside the bed wall to securely lock it in place. Available in sets of two tie downs. For more details, circle (703) on the reply card.

LOADER-BACKHOE: Ford Motor Company, Troy, Mich.

Model 3550 tractor-loader-backhoe combines increased horsepower and digging capability with proven performance and dependability. Features include a new 50 Hp diesel engine and the availability of a heavy-duty 15 foot backhoe. The 3550's three-quarter cubic-yard loader has a height reach of 10½ feet, 3,050 pounds of lift capacity and 4,360 pounds of breakout force. General, light material, and stockpile buckets are available. Operators have three transmissions from which to choose. An optional three-point hitch supplies 2,000 pounds of lift capacity 24 inches to the rear of lower-link points. For more details, circle (704) on the reply card.

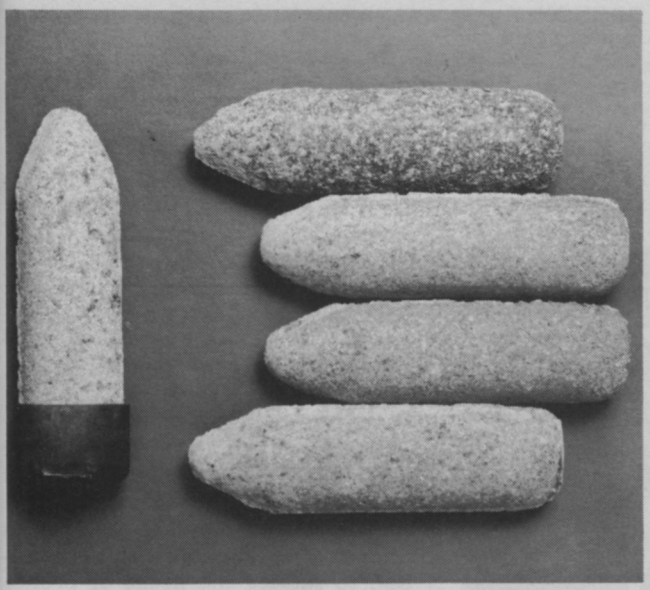


PRO-GRADE SAW: Stihl American, Inc., Midland Park, N.J.

Here's a powerful lightweight saw designed specifically for the professional user. It is the 020AV-P, a slightly modified version of the popular 020AV model. The pro-saw has a safety hand guard and an elongated wrap-around handle, well-centered for superior balance. Another feature is the safety-recessed muffler which will make tree climbing saw men happy by preventing muffler burns. Standard equipment is the exclusive oilamatic-type chain and the built-in anti-vibration system. For more details, circle (705) on the reply card.

WALK-BEHIND POWER BROOM: Jenkins Equipment Co., Dexter, Mich.

Model C-36 Sweepster is a push broom, snow shovel, hand rake and pitch fork all in one. Wherever a vigorous sweeping action is required, the easily transportable C-36 can be used. The 36 inch wide polypropylene brush has two speed ranges. The slower speed is used for indoor sweeping where blowing dust and flying debris are objectionable. The higher speed is used outdoors where up to 5 inches of snow, thatch, and other debris can be swept. The unit is self-propelled. Brush can be angled by fingertip controls. Brush is 26 inches in diameter, comprised of 20 individual discs and 19 spacers. A 5 HP gas engine with recoil starter and throttle control powers the rotary broom. Net weight is 235 pounds. For more details, circle (706) on the reply card.



TREE FOOD: Jobe's Tree Food Spikes, Lexington, Ky.

Impress your customers with this new concept in tree fertilization. Tree food spikes are compacted fertilizer in a 16-8-8 analysis. Approximately one-third of the nitrogen is a long-lasting ureaform. The spikes come with a rubber cap to put on their head, for pounding into the ground. Rainwater does the rest. Thoroughly tested, the tree food spikes are reported to be "3 times faster" to use than prior methods for fertilizing trees. In addition, university tests have determined that the fertilizer reaches the root zone as fast as any other method used. For more details, circle (707) on the reply card.

MOBILIFT: Pitman Manufacturing Co., Div. A. B. Chance Co., Grandview, Mo.

MobiLift is a fully articulated aerial device that mounts on trucks as small as 54 inches (cab-to-axle). It's available in 24 and 28 foot ground-to-bucket floor heights, with steel booms only on the 24 footer and a choice of steel or Epoxiglas insulated upper boom on the 28 foot model. The unit is stable without outriggers. It can put 300 pound bucket payloads where the work is when larger units can't even get to it. Bucket controls are within easy reach of operator and have a protective guard to prevent accidental acuation. This unit is ideal for the arborist who cares for younger urban trees. For more details, circle (708) on the reply card.

—insect report—

TURF INSECTS

RHODESGRASS SCALE
(Artonina Graminis)

ARIZONA: Heavy in some Bermuda grass lawns in Salt River Valley, Maricopa County.

BLUEGRASS BILLBUG
(Sphenophorus Parvulus)

NEBRASKA: One bluegrass sod field near Omaha, Douglas County, with 86 adults and 3 larvae in 5 square feet noted.

GRANULATE CUTWORM
(Feltia subterrnaea)

OKLAHOMA: Heavy in experimental bentgrass plot in Payne County.

NORTHERN MASKED CHAFER
(Cyclocephala borealis)

OHIO: Larvae common in fairway turf of Wayne County golf course.

INSECTS OF ORNAMENTALS

LACE BUG
(Stephanitis takeyai)

PENNSYLVANIA: Adults collected from 8 *Pieris* sp. September 6 at a small nursery in Berwick, Columbia County. This is a new county record.

GREEN PEACH APHID
(Myzus persicae)

SOUTH CAROLINA: Heavy on terminal branches of ornamental cherry plants in Anderson County nursery. Caused considerable curling of leaves.

FLORIDA WAX SCALE
(Ceroplastes floridensis)

SOUTH CAROLINA: Moderate on hemlocks at Anderson County nursery. Damage light, controls planned.

TREE INSECTS

VARIABLE OAKLEAF CATERPILLAR
(Heterocampa manto)

ARKANSAS: Heavy populations did not develop in 1972 as during past two years. Species apparently returned to more normal pattern. MISSOURI: Ornamental oaks defoliated in spots around cities in southeast area. Light feeding seen on wild oak.

MIMOSA WEBWORM
(Homadaula anisifoliella)

OKLAHOMA: Light on mimosa in Morrison, Noble County. This is a new county record.

ELM LEAF BEETLE
(Pyrrhalta luteola)

ARIZONA: Almost completely defoliated Chinese elms in Prescott area of Yavapai County. COLORADO: Larvae and adults of second generation caused severe defoliation of Chinese elms in Mesa, Delta, and Montrose Counties. GEORGIA: Caused heavy damage to elms in Houston County.

FALL WEBWORM
(Hyphantria cunea)

TENNESSEE: Caused heavy defoliation of hardwood trees in Davidson and surrounding counties. NEW MEXICO: Heavily damaged many shade trees in Dona Ana County. Larvae moved into houses and became nuisance.

TWIG GIRDLER
(Oncideres cingulata)

OREGON: Appears much heavier in northwest area than in past years.

The Virginia Turfgrass Council presented a check for $1,000 to Virginia Tech for use in furthering turf management programs in the department of agronomy. The check was presented to James E. Martin, left, dean of the College of Agriculture and Life Sciences by Earl H. Odell, right, secretary-treasurer of the Virginia Turfgrass Council. Donor is J. L. Kidwell, center, council president and president of the J. L. Kidwell Landscape Corp.

Grounds Management Society Announces News Officers

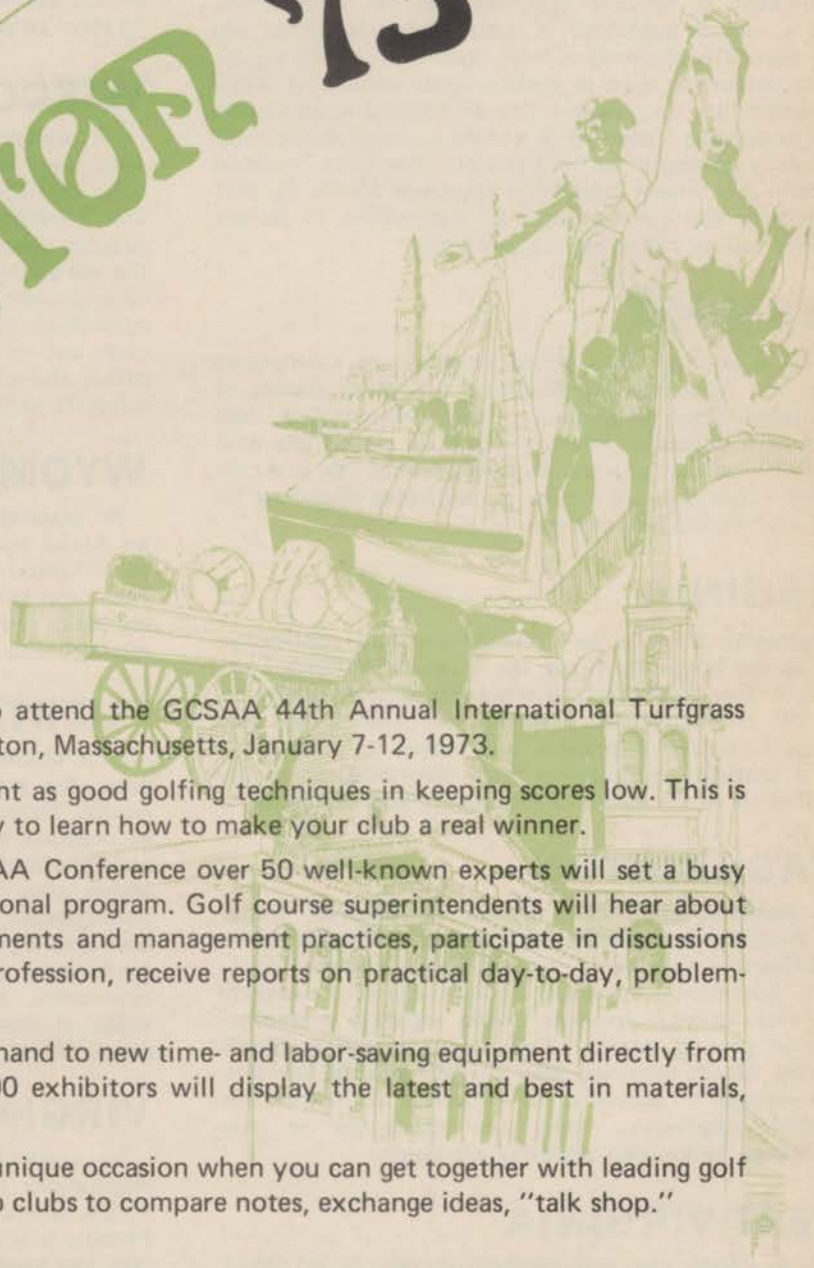
In an unprecedented election of the Professional Grounds Management Society, president J. Paul Barefoot, vice president Allen W. Hartley and treasurer Charles L. Hall, Jr. were re-elected. Election results were announced at the 58th annual meeting of the Society in Washington, D. C.

According to Robert C. LaGasse, executive director, the re-election of President Barefoot reflects the trust and confidence of the entire membership in the outstanding work of its officers in realigning the organization to service the needs of professional grounds managers throughout the nation.

Barefoot, in his installation address, stressed the need for continued efforts to unify and produce a single voice for the industry that can be heard across the nation calling for an upgrading of the profession, public recognition of the profession's contribution to society, and overall improvements of man's environment through better care and maintenance practices.

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA

Boston 73



You are cordially invited to attend the GCSAA 44th Annual International Turfgrass Conference and Show in Boston, Massachusetts, January 7-12, 1973.

Good turf is just as important as good golfing techniques in keeping scores low. This is your once-a-year opportunity to learn how to make your club a real winner.

At this year's Annual GCSAA Conference over 50 well-known experts will set a busy pace for the 4½-day educational program. Golf course superintendents will hear about the latest turfgrass developments and management practices, participate in discussions on timely subjects of the profession, receive reports on practical day-to-day, problem-solving solutions.

You'll also find answers firsthand to new time- and labor-saving equipment directly from the suppliers. More than 100 exhibitors will display the latest and best in materials, machines and supplies.

More important, this is the unique occasion when you can get together with leading golf superintendents from the top clubs to compare notes, exchange ideas, "talk shop."

44th **INTERNATIONAL TURFGRASS CONFERENCE AND SHOW**

JOHN B. HYNES CIVIC AUDITORIUM – BOSTON, MASS.

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Send in for your registration form now. By registering in advance you will save time at the registration desk in Boston, where a distinctive badge and your other conference materials will be awaiting your arrival.

Last name _____ First Name _____

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Club or Firm _____

For More Details Circle (105) on Reply Card

APPLICATOR USE LAWS *(from page 11)*

the law governing sale, use and transportation of herbicides where it relates to custom applicators.

UTAH

The Economic Poison Application Act of 1951 is still applicable. It requires applicators to be licensed unless a custom applicator is compensated less than $50 per year. The application form must also list the equipment or devices used in custom application. The board of agriculture may issue a license without examination to a nonresident licensed in a state having substantially the same provisions as the Utah Act. The Utah Pesticide Control Act, a new legislation approved March 22, 1971 authorizes the commissioner of agriculture to license dealers selling restricted use pesticides.

VERMONT

This is another state where there are no exemptions from the licensing law. Vermont has three classes of pesticides. Class C pesticides (low concentration, less hazardous pesticides commonly sold at retail) are now subject to be sold only by licensed persons. The law currently states that all classes of pesticides may now be sold only by licensed dealers.

VIRGINIA

Currently there is no pesticide use and application law on the books. However, the Virginia Pesticide Law, an economic poison act, incorporates sections authorizing the commissioner to restrict or prohibit the sale or use of economic poisons, and makes it unlawful to use a pesticide contrary to label directions, or to the regulations of the board of agriculture and commerce.

WASHINGTON

A pesticide applicator's license is required. Under the Washington Pesticide Application Act the director is authorized to classify licenses as pest control operators, ornamental sprayers, agricultural crop sprayers and right-of-way sprayers, with separate classifications of ground, aerial, or manual application, House Bill No. 636-X, approved May 20, 1971 amends this Act. One change is provision of authority to re-examine pesticide applicators when new categories or new knowledge make such retesting advisable.

WEST VIRGINIA

No pesticide use and application law is in effect. However the Pesticide Act of 1961 (Economic Poison Law) and the Interagency Pesticide Committee Act are currently applicable. The latter is an advisory committee, without administrative or operation authorities or responsibilities. It's duties are to review current use of pesticides, review state pesticide programs, consider problems arising from pesticide use, recommend pesticide control legislation to the governor, and advise on and approve all programs involving use of pesticides on state property.

WISCONSIN

No pesticide use and application law, currently. Relevant laws include the Pesticide Law (Economic poison law) and the Pesticide Review Board. The latter creates a board and defines authority. The department of natural resources may also adopt rules pertaining to the use of pesticides, but such rules are not effective until approved by the board. Likewise, the department of agriculture may adopt rules to govern the use of pesticides and to determine the times and methods of application and other conditions of use. These rules are not effective until approved by the board.

WYOMING

No pesticide use and application law is in effect. But, an Aerial Spraying statute requires annual registration of all aerial applicators, keeping of certain records of each application, specific safety devices on aircraft, etc. Also, provisions of the Wyoming Pesticide Law are applicable to applicators.

PUERTO RICO

It is unlawful to engage in the application of pesticides for profit unless licensed by the secretary of health. Nonresidents must be licensed under "An Act to regulate the commercial application of insecticides and/or economic poisons in Puerto Rico." Licenses are issued after written exam is passed. Renewal must be accompanied by a certification that pesticides to be used will be only those registered by the department of agriculture, proof that all supervising employees have experience, ability, and skill in applying pesticides, proof of insurance and payment of the fee for renewal ($10).

VIRGIN ISLANDS

No pesticide use and application law at presstime. Regulations have been issued under authority of the Virgin Islands Code relating to insect and pest control. Permits are issued when the commissioner is satisfied that the applicant is qualified.

Service Training Program Announced By Jacobson

A new series of service training courses for golf and park maintenance personnel has been announced by Jacobsen Manufacturing Company for its newly expanded Product Training Center in Racine, Wis.

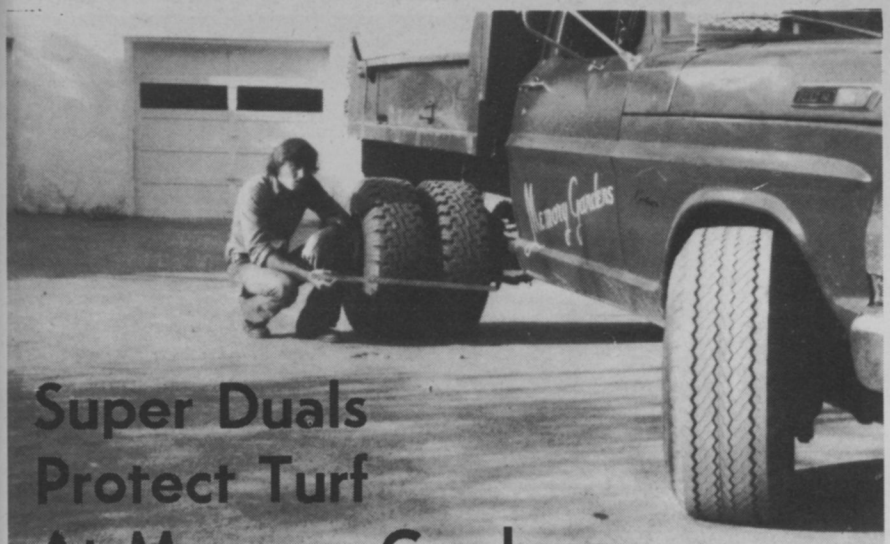
The schedule is a part of a new curriculum disclosed by Ron Wiltsey, product training supervisor, which also includes sessions for service men from both turf and consumer distributors as well as service station and dealer service personnel.

Courses for golf course and park maintenance people will begin January 15th, with the final class starting April 9. These three-day sessions include engine tear-down and theory, reel mower grinding, transmission, clutches, hydraulics and practical work involving turf equipment.

Three classes will be held for turf distributor service personnel starting in mid-October. In addition to service, these classes also include instruction on conducting similar service training programs in the field.

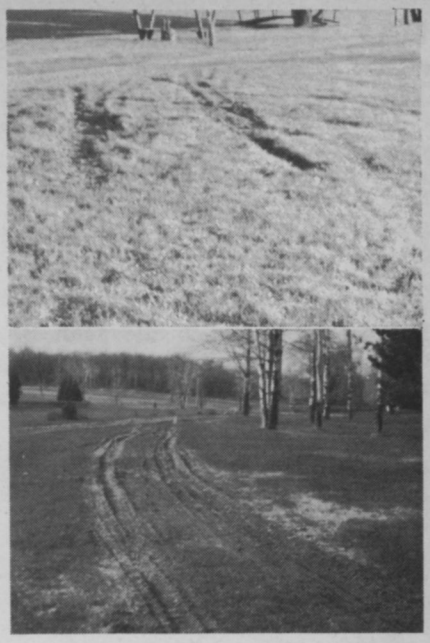
The recently-expanded Jacobsen Product Training Center includes a workbench classroom, a well-equipped audio-visual lecture room and a modern kitchen for convenience lunches.

For detailed brochure write: Product Training Center, Jacobsen Manufacturing Company, 1721 Packard Avenue, Racine, Wisconsin 53403.



Super Duals Protect Turf At Memory Gardens

By MICHAEL LILLIS
Memory Gardens, Albany, N.Y.



Author (left) measures the width of the super duals. Even when loaded, truck floats over turf. (Above) Ruts tell the before story.

MAINTENANCE of cemetery turfgrass has become an important aspect with the introduction of the new memorial type cemeteries. Judicious landscaping, well-manicured turfgrass and a quite, dignified surroundings lend to the beauty and serenity which bereaved families and friends desire.

Ground maintenance personnel must take every precaution to protect this great asset, yet it still represents a problem, particularly in the north country. Winter, spring and fall heaving, traffic on turf and dirt removal can play havoc with a turfgrass seedbed as well as a turfgrass stand.

Nearly every device imaginable has been contrived to elimate destruction of turf. Chapels have been erected to minimize the traffic of the diggers, tent equipment, trucks, loads of sand, and vault trucks going into the area.

Large balloon or terre-type tires on all machinery traversing turf are being used to protect and minimize turf damage. At Memory Gardens, we have been concentrating on this feature and to date the results have been fantastic.

We have further found that dirt hauled to and from the gravesite can be placed in a Ford F-350 dump. The approximate one yard dump body, the seven and one-half thousand pound capacity rear axle and the 560 c.i. engine, all work into an unbeatable combination for our purposes. Except for a couple of problems.

The standard 4:10 rear axle gear ratio has proved to be too high in parts of our "rolling terrain," especially with a full load. Add bad weather, snow, ice, mud and hills and it sometimes becomes quite a job getting an unloaded truck to the gravesite.

This problem had been anticipated when the truck was purchased and we installed single 12x16.5 tires (called supersingles) on the rear to replace the original standard duals. This greatly improved traction and floatation. However, it did nothing for the turf. Three clutches and several thousand dollars in damaged turf convinced us that something must be done.

After talking with the driver and mechanic we decided that the truck needed a lower rear axle gear ratio, a posi-traction rear axle and much larger tires.

The rear axle parts were easily installed. But where could we find tires? We thought of aircraft tires, tractor tires and other off-the-road types.

We had previously eliminated turf damage problems with the backhoe by purchasing a 4-wheel drive unit. Thus, when one of the backhoe operators suggested adapting four of the super singles to the rear and two to the front of the truck, we decided to investigate the possibility.

A Goodyear Tire and Rubber Company spokesman notes that the original equipment duals that came on the truck had 40 square inches of tire on the ground at the end of each axle. With a load of 2440 pounds, the downward pressure would be 60 psi. Changing to the 12 x 16.5 super single on each axle would have the effect of increasing the weight distribution over about 65 square inches and reducing the downward pressure to less than 20 psi. Adding dual super singles to each rear axle would double the surface area to about 130 square inches per axle, thereby further spreading the downward weight distribution.

When those tire and rim manufacturers with whom we checked considered dual hubs for 12 x 16.5 a near impossibility, we decided to make them ourselves. It was our luck that the cone shaped centers of the stock dual hubs fit into the 12 x 16.5 rims. With longer lug bolts and a two-inch spacer on the hub between the wheels, we engineered a super truck with fantastic floatation and unbelievable traction.

Goodyear additionally points out that tire pressure for this off-the-road vehicle may be dropped to a recommended 30 pounds for even more floatation.

The net effect of the dual super singles on the rear and super singles on the front of the truck has been a reduced turf maintenance budget, no cracked granite bases, no bent memorials, and no complaints.

Admittedly, the tire acquisition cost has at least doubled. But the increased savings of turf destruction and an almost 70 percent reduction in downward pressure per square inch have more than offset the tire investment in quality turf year-around at Memory Gardens.

GCSAA Turfgrass Showcase Slated for January 7-12

"The Golf Course Superintendent And Changing Times" has been selected as the theme of the 44th annual GCSAA International Turfgrass Conference and Show. Dates of the convention are January 7-12, 1973.

This year's meeting and show will be held in Boston at the John B. Hynes Civic Auditorium and the Sheraton-Boston Hotel.

The educational portion of the convention has been divided into seven assemblies. Assembly themes include: Time for a change; Legislative changes and the golf course superintendent; Superintendent tournament responsibilities: before, during, and after; Changes in putting green construction concepts; Changes affecting turf management practices; Changes in automatic irrigation concepts; Changes in demand for superintendents; and, Changes and the thinking superintendent.

Delegates will have an opportunity to hear the latest information on "OSHA and Golf Maintenance Operations" in a speech by John J. Spodnik, superintendent, Westfield Country Club, Westfield Center, Ohio. And "Noise Levels and Golf Maintenance Operations" will be discussed by Roger J. Thomas, marketing manager, Jacobsen Manufacturing Co., Racine, Wisc. In addition, a full-scale equipment display will feature the latest in turf care machinery.

Keynote speaker for this year's gala is Dr. Harvey C. Hahn, pastor emeritus, Otterbein United Methodist Church, Dayton, Ohio.

All educational assemblies will be held in the main ballroom of the Sheraton-Boston with the exception of the opening session. It is scheduled for the J. B. Hynes Civic Auditorium (main floor), adjacent to the hotel.

This year's meeting promises to hold much potential for the modern golf superintendent. For advanced registration, write, GCSAA Headquarters, 3158 Des Plaines Avenue, Des Plaines, Illinois 60018.

The 20th annual judging of the National Landscape Awards Program was held in Washington, D.C. with 22 projects being chosen to receive Awards and 24 singled out for Certificates of Merit from a field of 176 entries. Shown during the day-long judging are (from the left): Michael Pirich, landscape architect, Ft. Lauderdale, Fla.; Joan Lee Faust, Garden Editor, **New York Times**; and Darwina Neal, landscape architect, National Park Service; who served as this year's judges. The Landscape Awards Program is sponsored annually by the American Association of Nurserymen and is recognized as the nation's oldest and most honored landscape improvement and beautification award program.

Gas Engine Market To Double In 5 Years

After market requirements for Kohler engines and parts will more than double in the next five years, says J. M. Roenitz, Kohler Co. sales manager, engine distributors.

Speaking at the annual Engine Service Association meeting at Scottsdale, Arizona, Roenitz stated that Kohler's after market sales five years from now will be up 120 per cent over 1972.

The forecast, he noted, is conservative. In the last five years, Kohler's annual after market sales climbed more than 160 per cent.

"What this amounts to," Roenitz said, "is an explosion in after market business—the direct result of strong O.E.M. sales and a rapid increase of Kohler engines in the field."

Roenitz told distributors at the E.S.A. meeting that Kohler Co. has opened a highly-automated parts handling warehouse to speed shipment of service engines and parts to its world-wide distributor organization.

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- Double plumbed for separate pump.

Four times per year contracted customer route, located in west Portland, Oregon. Will continue in pruning and shaping business, but will work closely with the spraying operation for buyer. Will consider working partner. Asking $55,000; Terms.

Write or call: **Bill Bailey**
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— classifieds —

When answering ads where box number only is given, please address as follows: Box number, c/o Weeds Trees and Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

Rates: "Position Wanted" 10¢ per word, minimum $3.00. All other classifications 20¢ per word, minimum $4.00. All classified ads must be received by Publisher the 10th of the month preceding publication date and be accompanied by cash or money order covering full payment. Boldface rule box: $25.00 per column inch.

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SOD QUALITY MERION SEED for discriminating growers. Also Fylking, Delta, Park, Newport, Nugget and Pennstar bluegrasses as well as fine fescues. We will custom mix to your specifications. Michigan State Seed Company, Grand Ledge, Michigan 48837. Phone 517 627-2164.

MISCELLANEOUS

TREE APPRAISALS, SURVEYS, loss evaluations and expert consultation services. For names of members of the American Society of Consulting Arborists, Inc., throughout the country, contact: Executive Director ASCA, 12 Lakeview Ave., Milltown, New Jersey 08850.

LANDSCAPE DESIGN KIT 37 rubber symbol stamps and ink pad, postpaid $25.00 C.O.D. $26.00 plus postage. Order direct or brochure sent. California add tax. T-Gordon's, Box 741T, Reseda, Calif. 91335.

USED EQUIPMENT

FULL LINE OF USED TREE equipment for sale. We accept trade-ins and buy used tree equipment. New service available for northern Ohio. We now rent skyworkers, tree spades, brush grinders, 84' National crane, stump grinders and wood splitters. Edwards Tree Service, 3190 Cooper Foster Park Road, Vermilion, Ohio 44089. Phone: 216 967-6750 or 933-6750.

ONE 1970 Chevy Chassis. 26,000 actual miles. 50' Skyworker Bucket with dump box. Very good shape. Unit just worked over at factory. Will sell with or without 1972-12" Mitts-Merrill Chipper. Model #M-12. For price call 419 927-9752.

WANTED—Turf tractor, Ryan Ground Groomer, Ryan Sod Cutter HD18, and rider roller. Tischler Grass Farm, 4206 Medical Parkway, Austin, Texas 78756. Phone 512 453-7291.

1969 ASPLUNDH V-8 16" chipper, $295.00. Ohio Chipper & Equipment Co., Mentor, Ohio 44060. Phone 1 216 255-5144.

BUSINESS OPPORTUNITIES

WANTED: Manufacturer to build and sell a small tractor unit for golf course greens. A new concept in greens maintenance. Machine is presently in the field running as a Tri Plex greens mower. Designed and developed by a Golf Course Supt. Have Patent Pending. Interested in outright sale or royalty. Contact Frank E. Ekas, 851 Ekastown Road, Sarver, Penna. 16055. Phone 412 353-1142.

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CHAIN SAW CHAIN, bars, sprockets, sharpening equipment, saw parts and accessories. Save to 40%. Professional quality, fully guaranteed. World's largest mail order supplier of this equipment. Free catalog. Write Zip-Penn, Box 43073-A68, Middletown, Ky. 40243.

THE GOLD ONES from D. J. Andrews, Inc., Stump cutter teeth, pockets, and bolts. Top quality and best price in the U.S.A. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230 or 716 436-1515.

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LEARN AUTOMATIC IRRIGATION. Easy to follow text and diagrams on latest valves, heads, controllers. System design, operation and trouble shooting. Write for free outline on this ten lesson low cost course. Larson Company, P.O. Box 4453, Santa Barbara, Calif. 93103.

HELP WANTED

DISTRIBUTORS for D. J. Andrews, Inc. stump cutter teeth, pockets and bolts. Best wholesale and retail price in U.S.A. Add to this exclusive area, local advertising at our expense, etc., and you have our story. D. J. Andrews, Inc., 17 Silver St., Rochester, N.Y. 14611. Call 716 235-1230, or 716 436-1515.

WANTED: Tree salesman for established Tree Surgery & Landscape Company located in southern Massachusetts. Please send resume — all replies confidential. This is also a business opportunity. Write Box 92, Weeds Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

SOD NURSERY MANAGER. Young, married man for 400 acre operation serving Chicago metropolitan area. Send resume. Box 91, Weeds Trees & Turf, 9800 Detroit Ave., Cleveland, Ohio 44102.

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December WTT

New California Facility Erected By F.E. Meyers

Plans for the construction of a new 15,000 square foot warehouse light assembly and dealer training center in Visalia, California, have been disclosed by The F. E. Myers & Bro. Co. Announcement of the expansion move was made by W. D. Miller, Myers executive vice-president.

The plant site, consisting of five acres, is situated in an industrial park 40 miles south of Fresno. Construction is slated to start immediately with completion scheduled within the next 90 to 120 days, Miller said.

"This move is fully in keeping with Meyers long range objective to work more closely with our dealers in key market areas to improve customer service and to achieve more economical distribution of our product lines," he said.

The company's full line of pumps and water systems, water conditioners, power sprayers, hydraulic sewer cleaners and mobile industrial cleaners will be distributed from the new facility, according to Miller. The training facilities to be included in the new structure will be used to acquaint dealers with Myers products.

"I bet you're connected with the Mafia!"

—trimmings—

FALL LEAVES can damage turf if left to accumulate. A heavy layer of leaves increases disease, reduces photosynthesis and recovery of grasses, particularly in shady locations, according to Purdue University extension agronomists. If leaves are shredded, spread them as uniformly as possible over the entire area.

A NONCERTIFIED APPLICATOR in Illinois has been fined for applying pesticides near Kankakee without a license. The arrest and fine constituted the first action by the State since the Illinois Custom or Public Application of Pesticides Act was made law. Inspectors are currently calling on landscape contractors to check the status of their licenses. Unannounced checks are also being made of applicators on-the-job in attempts to finding application violations.

TOBACCO samplings of the fluecured variety have indicated six percent contained DDT-TDE residues, according to the USDA's Agricultural Stabilization and Conservation Service. The two insecticides were banned in 1970 for use on tobacco. Application constitutes a violation of Federal law. This example serves as warning to applicators who attempt to use DDT-TDE compounds in spraying ornamentals or other vegetation.

ALLIGATORWEED in Arkansas has increased 20-fold in the past three years. When first discovered in the southwestern part of Arkansas County in 1968, the weed covered about 10 acres. By fall of 1969, 50 acres were infested. In September 1971, 220 acres were reported infested by the Corps of Engineers. The weed, a native to South America, is one of the most difficult of the aquatic weeds to control because it will grow free-floating on water, rooted to the bank, emersed through nine feet of water, in irrigated fields and even on dry land.

Chemical control is available but labeling restrictions prohibit its use in flowing water. The heaviest infestations are located in bayous, streams and rivers. Silvex, a 2,4,5-T derivative, gives effective control. However, because it is a hormone-type herbicide, damage to adjacent crops may be incurred through spray drift.

Biological control through the release of a South American flea beetle looks promising. The beetle feeds exclusively on alligatorweed.

Efforts are currently being made to encourage landowners to start control measures immediately.

HITCHHIKING GYPSY MOTH continues to be sighted in new areas. Latest location to be struck is Lorain County, Ohio, where USDA officials have reported an egg mass containing well over 100 individual eggs, two cocoon cases and two cast-off larval skins. Officials of USDA's Animal and Plant Health Inspection Service (APHIS) say the infestation was found in a survey following the discovery in Angust of seven male gypsy moths near a recreational vehicle sales and storage lot.

31,000 AMERICANS are tree farmers. Nationwide, they own 74 million acres of forest land.

QUARANTINE OF EUROPEAN CHAFER is now officially terminated. USDA says that control measures used against other insects also help to combat this pest of soil, plants with roots, grass sod, plant crowns, and roots for propagation. This action removes Federal regulations from all states previously under quarartine — Connecticut, Massachusetts, New York and Pennsylvania.

BUMPER STICKER BOOM is affecting nearly every segment of America. Radio announcers, newspapers and TV are making unusual stickers a part of every news program. Subjects from love to lettuce are plastered on autos more prominently than the manufacturers name. Latest to be offered is one entitled "Pesticides and Fertilizers are made to HELP THE ENVIRONMENT *NOT* HURT IT!" If you are interested in acquiring quantities of these with your firm's name imprinted on it, contact Thomson Publications, P. O. Box 50160, Indianapolis, Ind. 46256.

WHITE AMUR or Chinese grass carp has been taken out to dinner, courtesy of the State of Florida. Although the menu of this herbivorous fish is decidedly water hyacinths, the cost of the project still amounts to $130,000. Randolph Hodges, state natural resources director, said the fish would be used in six isolated and tightly guarded ponds in various parts of the state. The three year program is designed to test the ability of the fish to clean up weed-choked waterways.

The Law In Review

With passage of the Federal Environmental Pesticide Control Act of 1972, it is important to understand the new terms mentioned in the law. These terms will have direct bearing on you the applicator and your business. Definitions of key words of the Law include:

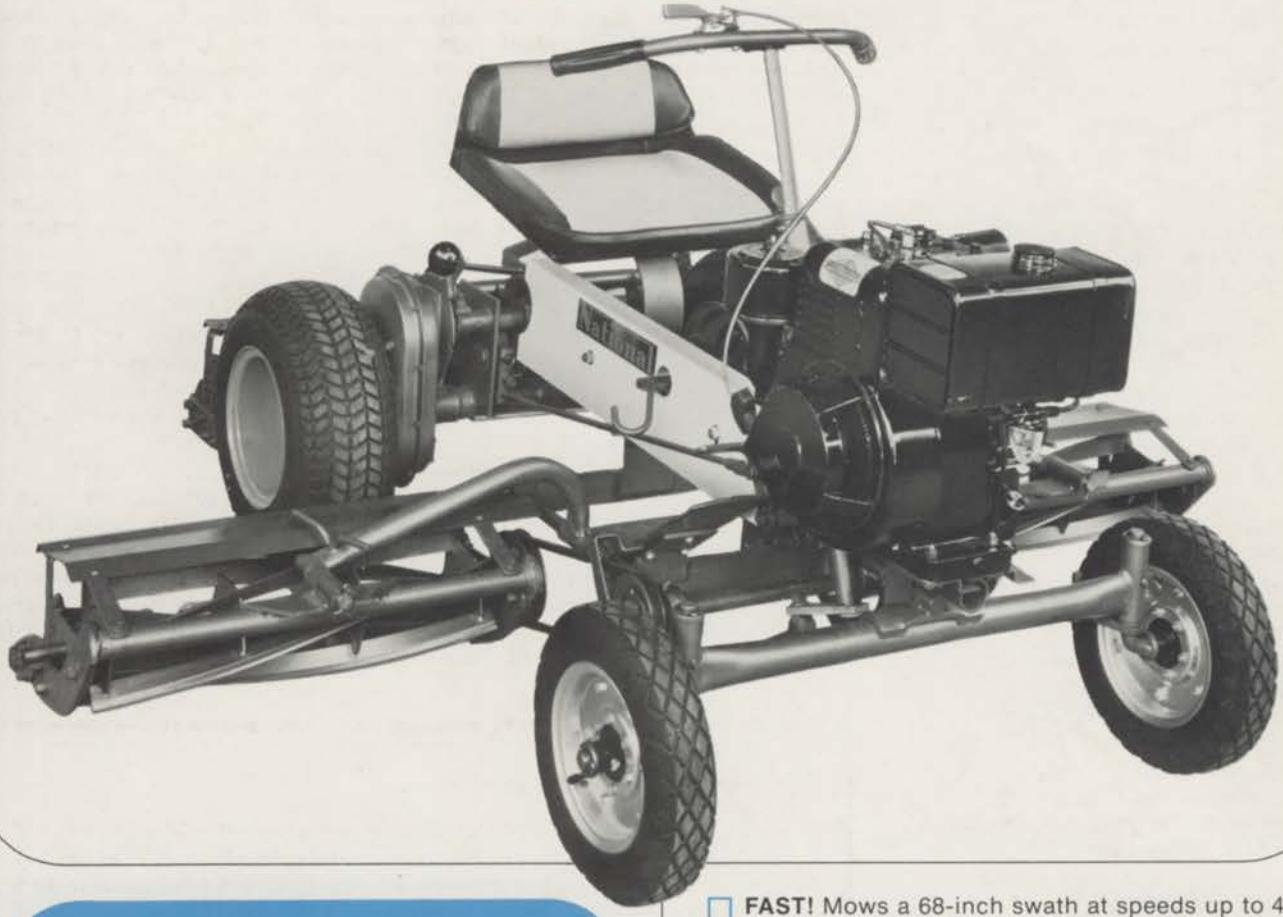
CERTIFIED APPLICATOR: Any individual who meets the prescribed standards set by his state certification program and who is authorized to use or supervise the use of any pesticide which is classified for restricted use.

PRIVATE APPPLICATOR: A certified applicator who uses or supervises the use of any pesticide which is classified for restricted use for purposes of producing any agricultural commodity on property owned or rented by him or his employer or (if applied without compensation other than trading of personal services between producers of agricultural commodities) on the property of another person.

COMMERCIAL APPLICATOR: A certified applicator (whether or not he is a private applicator with respect to some uses) who uses or supervises the use of any pesticide which is classified for restricted use for any purpose or on any property other than that defined in the definition of a private applicator.

UNDER THE DIRECT SUPERVISION OF A CERTIFIED APPLICATOR: Unless otherwise prescribed by its labeling, an environmental protection chemical is considered to be applied under the direct supervision of a certified applicator if it is applied by a competent person acting under the instructions and control of a certified applicator who is available if and when needed, even though such certified applicator is not physically present at the time and place the pesticide is applied.

Pretty it ain't



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Keep out of reach of children.
CAUTION! MAY IRRITATE EYES, NOSE, THROAT, AND SKIN.
Avoid breathing dust or spray mist.
Avoid contact with skin, eyes, and clothing.
GENERAL INFORMATION— Du Pont "Tersan" SP Turf Fungicide is recommended for the treatment of turfgrasses for the control of snow mold (Typhula) and Pythium blight.
Do not re-use container; bury when empty. Do not graze or feed clippings from treated areas to livestock.
NET 3 LBS.
E. I. DU PONT DE NEMOURS & COMPANY (INC.)

3 Fall is the time to take it

If you're following the Du Pont TERSAN 1-2-3 Disease Control Program, you've already got spring and summer turf diseases licked.

Now's the time to prevent fall diseases—take your third step to healthier turf, the application of TERSAN SP on tees, fairways and greens.

TERSAN SP gives superior control of Gray Snow Mold and Pythium. These diseases will be the major problem, depending on your area, during the fall and early winter months.

TERSAN SP, like the other Du Pont TERSAN fungicides, is non-mercurial, low in human toxicity and has a large safety factor on turf.

Now is the time to take the third step in your Du Pont Disease Control Program or, if you haven't been on it, it's the time to start. You'll find the TERSAN Program is highly effective, economical...and *complete*. Prevents or controls all major turf diseases on all common grasses all year long.

NOTE: Applications of Du Pont TERSAN 1991 turf fungicide should be used in the late fall and early spring in areas where Fusarium Patch (Pink Snow Mold) is a problem.

Your golf course supplier has complete details on the program and a supply of TERSAN fungicides. Give him a call today.

With any chemical, follow labeling instructions and warnings carefully.

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